

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



**BUDGET
ESTIMATES**

FISCAL YEAR 2006

CONGRESSIONAL SUBMISSION

PRIVILEGED

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Department of Commerce
National Oceanic and Atmospheric Administration
Procurement Acquisition and Construction
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

		Positions	FTE	Appropriation	Budget Authority	Direct Obligations
FY 2005 Appropriation Available		184	174	1,042,122	898,510	900,510
less: carryover		-	-	-	-	(130,658)
less: terminations		-	-	(172,130)	(172,130)	(172,130)
less: recoveries of prior year obligations		-	-	(2,000)	(2,000)	-
plus: restoration of FY 2005 rescissions		-	-	12,158	12,158	12,158
FY 2006 Base		184	184	880,150	880,150	882,150
plus: 2006 Program Changes		-	-	84,901	84,901	84,901
FY 2006 Estimate, PAC		184	184	965,051	965,051	967,051

Comparison by activity/subactivity		FY 2004 Actuals		FY 2005 Currently Available		FY 2006 Base Program		FY 2006 Estimate		Increase/ Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
System Acquisition	Pos/BA	143	764,541	179	792,699	179	802,612	179	890,441	-	87,829
	FTE/OBL	195	751,580	169	809,686	169	802,612	169	890,441	-	87,829
Construction	Pos/BA	-	173,756	-	186,491	-	42,805	-	40,880	-	(1,925)
	FTE/OBL	10	218,658	-	288,706	-	42,805	-	40,880	-	(1,925)
Fleet Replacement	Pos/BA	-	17,224	5	57,957	5	35,313	5	35,730	-	417
	FTE/OBL	6	41,840	5	60,738	5	35,313	5	35,730	-	417
Aircraft Replacement	Pos/BA	-	5,574	-	4,975	-	1,420	-	-	-	(1,420)
	FTE/OBL	-	5,111	-	13,650	-	1,420	-	-	-	(1,420)
Adjustments to Budget Authority	Pos/BA	-	-	-	-	-	(2,000)	-	(2,000)	-	-
	FTE/OBL	-	-	-	-	-	-	-	-	-	-
Total: Procurement Acquisition and Construction	Pos/BA	143	961,095	184	1,042,122	184	880,150	184	965,051	-	84,901
	FTE/OBL	211	1,017,189	174	1,172,780	174	882,150	174	967,051	-	84,901

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement Acquisition and Construction
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	FY 2004 Actuals		FY 2005 Currently Available		FY 2006 Base Program		FY 2006 Estimate		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Obligation	211	1,017,189	174	1,172,780	174	882,150	174	967,051	-	84,901
Total Obligations	211	1,017,189	174	1,172,780	174	882,150	174	967,051	-	84,901
Adjustments to Obligations:										
Cash Refund	-	(5)	-	-	-	-	-	-	-	-
Deobligations	-	(2,880)	-	-	-	(2,000)	-	(2,000)	-	-
Unobligated balance, adj. SOY	-	(186,367)	-	(130,658)	-	-	-	-	-	-
Unobligated balance, transferred	-	2,500	-	-	-	-	-	-	-	-
Unobligated balance, end of year	-	130,658	-	-	-	-	-	-	-	-
Total Budget Authority	211	961,095	174	1,042,122	174	880,150	174	965,051	-	84,901
Financing from Transfers:										
Transfer from Other Accounts	-	(1,624)	-	-	-	-	-	-	-	-
Transfer to ORF	-	1,420	-	1,043	-	-	-	-	-	-
Net Appropriation	211	960,891	174	1,043,165	174	880,150	174	965,051	-	84,901

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement Acquisition and Construction
SUMMARY OF FINANCING
(Dollar amounts in thousands)

	FY 2004 Actuals	FY 2005 Currently Available	FY 2006 Base Program	FY 2006 Estimate	Increase/(Decrease) over FY 2006 Base
Direct Obligation	1,017,189	1,172,780	882,150	967,051	84,901
Reimbursables	-	-	-	-	-
Anticipated offsetting collects	-	-	-	-	-
Total Obligations	1,017,189	1,172,780	882,150	967,051	84,901
Adjustments to Obligations:					
Actual Collections	-	-	-	-	-
Cash Refund	(5)	-	-	-	-
Recoveries	-	-	-	-	-
Deobligations	(2,880)	-	(2,000)	(2,000)	-
Unobligated balance, adj. SOY	(186,367)	(130,658)	-	-	-
Unobligated balance, transferred	2,500	-	-	-	-
Unobligated balance, end of year	130,658	-	-	-	-
Unobligated balance, rescission	-	-	-	-	-
Recoveries collected in prior years	-	-	-	-	-
Total Budget Authority	961,095	1,042,122	880,150	965,051	84,901
Financing from Transfers:					
Transfer from Other Accounts	(1,624)	-	-	-	-
Transfer from GSA	-	-	-	-	-
Transfer to ORF	1,420	1,043	-	-	-
Net Appropriation	960,891	1,043,165	880,150	965,051	84,901

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement Acquisition and Construction
CHANGES TO BASE
 (Dollar amounts in thousands)

	<u>FTE</u>	<u>Amount</u>
Adjustments:		
Restoration of Rescissions		12,158
Restoration of FY 2005 across-the-board rescissions contained in P.L. 108-447		
Financing:		
Deobligations	0	(2,000)
In FY 2005, NOAA expects to realize recoveries of prior year obligations of \$2,000,000. This amount will be used to offset the Budget Authority in FY 2006.		
Subtotal, Adjustments to Base	<hr/> 0	<hr/> 10,158
Total, Adjustments to Base	<hr/> 0	<hr/> 10,158

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement Acquisition and Construction
JUSTIFICATION OF CHANGES TO BASE

	<u>FTE</u>	<u>Amount</u>
Adjustments:		
Restoration of Rescissions		12,158,000
Restoration of FY 2005 across-the-board rescissions contained in P.L. 108-447		
Financing:		
Deobligations	0	(2,000,000)
In FY 2005, NOAA expects to realize recoveries of prior year obligations of \$2,000,000. This amount will be used to offset the Budget Authority in FY 2006.		
Subtotal, Adjustments to Base	<hr/> 0	<hr/> 10,158,000
Total, Adjustments to Base	<hr/> 0	<hr/> 10,158,000

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
PROCUREMENT, ACQUISITION AND CONSTRUCTION
SYSTEMS ACQUISITION FY 2006 OVERVIEW

SUMMARIZED FINANCIAL DATA

(\$ in thousands)

Procurement, Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
<u>OAR</u>					
Comprehensive Large Array Data Stewardship System	3,049	0	0	0	0
Research Supercomputing / CCRI	9,808	9,363	9,500	10,484	984
Air Force Radiometer Hurricane Processing	0	300	0	0	0
Subtotal, OAR	12,857	9,663	9,500	10,484	984
<u>NWS</u>					
ASOS	5,071	4,608	4,675	4,675	0
AWIPS	13,936	12,708	12,894	12,894	0
NEXRAD	10,918	10,665	10,820	8,460	-2,360
NWSTG Legacy Replacement	2,770	2,476	2,512	500	-2,012
Radiosonde Network Replacement	6,137	6,285	6,376	4,387	-1,989
Weather and Climate Supercomputing (WW)	19,038	19,322	19,285	19,285	0
Weather and Climate Supercomputing Backup	7,073	7,045	7,148	7,148	0
Cooperative Observer Network Modernization	0	864	877	4,277	3,400
NWS Coastal Global Observing System	0	0	0	1,497	1,497
Complete and Sustain NOAA Weather Radio	0	0	0	5,650	5,650
All Hazard National Warning Network: NOAA Weather Radio	5,442	0	0	0	0
Strengthen US Tsunami Warning Network	0	0	0	3,530	3,530
Subtotal, NWS	70,385	63,973	64,587	72,303	7,716

<u>NESDIS</u>					
GOES					
Geostationary Systems	274,632	301,153	305,537	358,142	52,605
Subtotal, GOES	274,632	301,153	305,537	358,142	52,605
POES					
Polar Orbiting Systems - POES	113,179	104,230	105,746	102,673	-3,073
Subtotal, POES	113,179	104,230	105,746	102,673	-3,073
NPOESS					
Polar Orbiting Systems - NPOESS	273,789	300,528	304,901	320,998	16,097
Subtotal, NPOESS	273,789	300,528	304,901	320,998	16,097
EOS					
EOS & Adv. Polar Data Processing, Dist. & Archiving Systems	2,474	2,958	3,000	1,000	-2,000
Subtotal, EOS	2,474	2,958	3,000	1,000	-2,000
CIP					
CIP - Single Point of Failure	2,769	2,760	2,800	2,800	0
Subtotal, CIP	2,769	2,760	2,800	2,800	0
Comprehensive Large Array Data Stewardship Sys (CLASS)	0	6,448	6,541	6,541	0
Coastal Remote Sensing	488	0	0	0	0
NPOESS Preparatory Data Exploitation	0	0	0	4,500	4,500
LANDSAT	0	0	0	11,000	11,000
Subtotal, NESDIS	667,331	718,077	728,525	807,654	79,129

<u>Program Support</u>					
HCHB Infrastructure Repairs	-419	0	0	0	0
CAMS/NOAA Financial Data System	-27	0	0	0	0
AMNH	989	986	0	0	0
NOAA Maintenance - Backlog	4,948	0	0	0	0
NOAA Maintenance - Cyclical	2,523	0	0	0	0
Base/Admin Holdings/Ship Creek	-111	0	0	0	0
Construction (Section 212)	6,065	0	0	0	0
Subtotal, Program Support	13,968	986	0	0	0
Total	764,541	792,699	802,612	890,441	87,829

Office of Oceanic and Atmospheric Research
Activity: Systems Acquisition

GOAL STATEMENT:

The Comprehensive Large- Array data Stewardship System (CLASS) will allow efficient management of high volumes of data that is critical to the climate, environmental and the scientific communities. The Office of Oceanic and Atmospheric Research's (OAR) Research Supercomputing goal is to provide a state-of-the-art scalable supercomputer and supporting infrastructure to advance modeling programs that are critical to NOAA's and the Nation's climate research.

BASE DESCRIPTION:

Comprehensive Large Array Data Stewardship System (CLASS): This program was transferred to the National Environmental Satellite Data and Information Service (NESDIS) in FY 2005. Please see the NESDIS Procurement, Acquisition, and Construction; Systems Acquisition Line Item for a description of this program.

Research Supercomputing/CCRI: This program supports a very large, scalable computer system that provides critical computing, storage, and analysis capabilities, as well as model development and infrastructure support, to NOAA's Geophysical Fluid Dynamics Laboratory (GFDL) to advance the Nation's climate research. This computing program allows NOAA to leverage the world-class research staff and modeling capabilities now in place at GFDL to address important research problems in climate and weather research. The laboratory's on-going model development effort is positioning GFDL to take full advantage of the scalable architectures and to advance the Nation's climate research program through NOAA computational research and collaboration with the inter-agency and academic climate research community.

Base activities support the objectives, "Advance understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

PROPOSED LEGISLATION:

None.

SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Line Item: Systems Acquisition					
Comprehensive Large Array Data Stewardship System	3,049	-	-	-	-
Research Supercomputing / CCRI	9,808	9,363	9,500	10,484	984
Air Force Radiometer Hurricane Processing	-	300	-	-	-
TOTAL	12,857	9,663	9,500	10,484	984
FTE	3	-	-	-	-

PROGRAM CHANGES FOR FY 2006:

Research Supercomputing/Climate Change Research Initiative. (+0 FTE, +\$984,000). NOAA requests an increase of 0 FTE and \$984,000 to fully support High Performance Computing for the Intergovernmental Panel for Climate Change (IPCC) and other national and international climate assessments. In addition, as part of NOAA's supercomputing activity, this capacity is categorized within the NOAA Strategic Plan as serving the "Environmental Modeling" objective of the NOAA goal: "Serve Society's Needs for Weather and Water Information."

Without this increment, NOAA would have to back away from its full international commitments and reduce its planned production of climate scenarios that explore the impacts of differing energy, water, and land use options, as well as reduce the amount of climate model data served to the public. Since our supercomputing capabilities have to be scaled back with reduced resources, receiving less than full funding directly impacts either the complexity (density) of the models that we can run or the speed with which we can run the models or both. The result is either less specific model outputs or fewer models outputs or both. As a result, the current level of resources available is insufficient to meet our international and Climate Change Science Program (CCSP) commitments; and we can provide researchers and policymakers fewer scenario model runs and less information on climate variability.

However, receipt of these funds will permit us to generate the CCSP's promised demand-driven scenarios; and the resulting data will provide crucial support information on a timely basis for policy and management decisions related to climate variability and change in each of the seven research elements in the CCSP. The increase will also provide critical funding for the development and utilization of comprehensive Earth System Models being developed jointly by NOAA/GFDL (one of the two Climate Modeling Centers identified in the CCSP) and its university partners, including Princeton University and Columbia University. These models are crucial for supporting the IPCC and the demand-driven scenarios to be produced under the CCSP and for providing decision-makers with the best scientific information possible on the impact of implementing potential technology options on climate change, the choice of which can have major impacts on our economy. The comprehensive climate models and the scenarios they produce are both crucial for meeting

NOAA's GPRA measures to (1) reduce the uncertainty in model simulations of the influence of aerosols on climate and (2) improve society's ability to plan and respond to climate variability and change using NOAA climate products and information.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)						
Research Supercomputing/CCRI	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Total Program
Change from FY 2006 Base	984	984	984	984	984	
Total Request	10,484	10,484	10,484	10,484	10,484	Recurring

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Performance Goals and Measurement Data:

This increase will support the objective: "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the DOC Strategic Goal of 'Observe, protect, and manage the Earth's resources to promote environmental needs'. Specifically, this increase supports NOAA's Weather & Water strategic goal.

Performance Measure	2006 w/o <u>Incr.</u>	2006 <u>Est.</u>
<i>Determine the national explained variance (%) for temperature for the contiguous U.S. using USCRN stations</i>	96.7%	>97%
<i>Determine the national explained variance (%) for precipitation for the contiguous U.S. using USCRN stations</i>	90%	91.2%

**National Weather Service
Activity: Systems Acquisition**

GOAL STATEMENT:

See the Overview for the National Weather Service Operations, Research, and Facilities for a discussion of our goals.

BASE DESCRIPTION:

Automated Surface Observing System (ASOS): This acquisition is a tri-agency program involving NOAA, the Department of Defense, and the Federal Aviation Administration. ASOS provides reliable, 24-hour, continuous surface weather observations. Under the product improvement portion of this acquisition program, NOAA is developing new ASOS sensor capabilities in order to meet changing user requirements and decrease maintenance demands.

FY 2003 Accomplishments:

- 132 processors installed
- 25 dew point sensors installed
- Acquired 200 production all-weather precipitation accumulation gauges, deployed 16
- Acquired and deployed 20 production ice free wind sensors
- Initiated development of enhanced precipitation identifier sensor

FY 2004 Accomplishments:

- Completed processor and dew point sensor deployments of 333 units
- Deployed 142 all-weather precipitation accumulation gauge units
- Acquired 40 ice free wind sensors
- Continued development of enhanced precipitation identifier sensor

FY 2005 Plans:

- Complete all-weather precipitation accumulation gauge deployment of 333 units
- Complete ice free wind sensor deployment of 313 units
- Acquire and deploy 20 enhanced precipitation identifier sensors
- Initiate development of 25,000 ft ceilometers

FY 2006 Plans

- Complete enhanced precipitation identifier sensor deployment of 282 units
- Complete development of and begin deployment of 25,000 ft. ceilometers

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
ASOS Product Improvement								
Change from FY 2006 Base					(4,675)			
Total Request	35,938	4,675	4,675	4,675	-			49,963

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Advanced Weather Interactive Processing System (AWIPS)/NOAAPort: AWIPS is the cornerstone of the modernized NWS. This system integrates and displays all hydrometeorological data at NWS field offices. AWIPS acquires and processes data from modernized sensors and local sources, provides computational and display functions at operational sites, provides an interactive communications system to interconnect NWS operational sites, and disseminates warnings and forecasts in a rapid, highly reliable manner. This system integrates satellite and radar data more fully and provides to the local field forecaster a capability that significantly improves forecasts and warnings. NOAAPort offers the communications capability to provide internal and external users with open access to much of NOAA's real-time environmental data.

Current AWIPS processing, communications, and storage capacity is inadequate to support current and future system processing demands from the three sources listed above. These pre-planned and ongoing NOAA investments in modeling, satellite instruments, and radar improvements (NEXRAD Product Improvement) represent NOAA's commitment to bring forecasters the data and information required to improve forecast accuracy and warning lead times. NWS Government Performance and Results Act goals are based on the effective use of these technology investments along with advanced decision assistance tools, forecast preparation and advanced database capabilities. However, without a sustained investment in the AWIPS hardware and software infrastructure, capitalization of these investments into improved performance will not be possible.

System-wide information technology (IT) investments are necessary to equip NWS forecast offices with the necessary computer performance and capacity to achieve planned and evolving operational and strategic requirements. Planned improvements in the NWS Tornado Warning Lead Time, Flash Flood Warning Lead Time and Winter Storm Warning Lead Time goals can only be realized through the following actions: improve AWIPS system throughput; add new and improved science; and exploit more accurate and higher resolution data and weather forecast model information. To accomplish this, we must improve AWIPS system's performance and capacity. Current choke points in system performance and capacity have been identified in the following areas: workstation and server performance, network throughput, and software architecture.

Improvements in system throughput can be realized by increasing processing and network capacity. Exploitation of new science requires radar, satellite and model data in addition to processing capacity and the ability to quickly and cost-effectively integrate improved decision assistance tools into the AWIPS software. High-resolution data and model information requires additional communications bandwidth, processing and mass storage capacity. For example, the satellite broadcast network (SBN) does not have the capacity to distribute the entire suite of current Eta-12 data, let alone the higher resolution models and products anticipated in FY 2006 such as WRF-8. Insufficient resolution is a serious limitation in providing timely, accurate forecasts and warnings to the public.

To measure current and projected AWIPS system performance the Workstation Performance Rating (WPR) has been developed. The WPR shows the latency, or inherent processing delay, in seconds within the AWIPS system. A higher WPR means more latency, and therefore more delay, in processing and in getting forecasters the products they need when they need them. WPR benchmark analysis has shown that, without planned hardware improvements, AWIPS performance will continue to decrease, resulting in an estimated 4-minute degradation in Tornado Lead Time by FY 2009.

In FY 2002, the NWS began a migration of the AWIPS IT infrastructure to a LINUX-based architecture. Phase I of this migration was completed in FY 2003. LINUX Phase II began in FY 2003 with workstation replacements and was completed in FY 2004. In FY 2005 and FY2006, LINUX Phase II continues with workstation/server installations and communications processor/local area network enhancements.

AWIPS has been designated an NWS "National Critical" IT system. As such it was required to be certified and accredited using the National Information Assurance Certification and Accreditation Process (NIACAP) in FY04. System acquisition funds provided in this PAC program are critical to providing adequate security for this National Critical system.

Outcomes:

The following table provides a summary of current hardware and communications performance measures and increases due to the investments described here. As noted previously, an increase in processing and communications capacity is essential in meeting the continuing, more stringent GPRA measures.

Performance Measure	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Processing Capacity (MFLOP)	7500	7500	7500	7500	16000
Benchmark Processing Speed (WPR-sec)	163	155	147	140	133
Effective Bandwidth Capacity (Mbps)	6.9	45	45	45	45

FY 2003 Accomplishments:

- Completed NEXRAD ORPG/AWIPS integration using Transmission Control Protocol/Internet Protocol (TCP/IP)
- Continued technology infusion activities related to SBN communications bandwidth
- Completed catastrophic backup facility investment for the AWIPS Network Control Facility at the NASA IV&V facility in Fairmont, WV.
- Completed LINUX phase 1 system upgrade
- Began LINUX phase 2 system upgrades including the AWIPS workstation replacement
- Completed WFO and RFC archive server deployments
- Continued software development and maintenance including porting to LINUX and warning decision support assistance

FY 2004 Accomplishments:

- Continued technology infusion activities for increased satellite communications bandwidth for Satellite Broadcast Network SBN –16.7 Gbyte/day additional bandwidth capacity added.
- Continued software development and maintenance including porting to LINUX and warning decision support assistance
- Began warning decision assistance training for warning & coordination meteorologists
- Completed replacement of 800 workstations at 168 sites
- Began replacement of 800 Text Workstations (X-Windows Terminals) at 168 sites
- Completed deployment of River Ensemble Processor (REP).
- Began replacing AWIPS routers and firewalls to ensure system security and maintainability.
- Began development of AWIPS Advanced Architecture Prototype.

FY 2005 Plans:

- Begin second phase of satellite broadcast network (SBN) bandwidth enhancements
- Continue LINUX phase 2 system upgrades including workstation/server installation and communications processor/ local area network enhancements

- Continue software development and maintenance including porting to LINUX and warning decision support assistance

FY 2006 Plans:

- Complete second phase of satellite broadcast network (SBN) bandwidth enhancements
- Continue software development and maintenance including porting to LINUX and warning decision support assistance
- Complete LINUX phase 2 system upgrades including workstation/server/communications processor/local area network enhancements
- Decommission older HP application servers

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
AWIPS Product Improvement								
Change from FY 2006 Base								
Total Request	77,095	12,984	12,984	12,984	12,984	12,984		142,015

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Next Generation Weather Radar (NEXRAD): NEXRAD is a Doppler weather radar system that provides automated signal processing, computerized processing of data by sophisticated meteorological software algorithms, and a high-capacity, processor-driven communications capability. The system is modular in design, upgradeable, has a long life-cycle expectancy, and provides its principal users with a wide array of automated weather information that will increase their capability to meet their respective operational requirements. For the NWS, the system uses Doppler technology and hydrometeorological processing to provide significant increases, both in the functional capability and in performance, compared with previous radars, including improved tornado and thunderstorm warnings, increased air safety, improved flash flood warnings, and improved water resources management.

Representation of clouds, precipitation, and storm-related winds is critical for improved mesoscale forecasts of severe weather. The NEXRAD network provides winds and radar reflectivity data, which can be used on 10 km and smaller scales. NCEP will implement an initial use of NEXRAD winds in 2003, but much more work is necessary to use the reflectivity for initial conditions and improve the use of wind and precipitation observations in numerical weather prediction. Using NEXRAD data in this way will improve the capability of new high-resolution data assimilation and modeling systems to forecast severe weather on hourly time scales for NWS WFO support.

Implementation of Open systems Radar Data Acquisition (ORDA) will enable the NWS to improve tornado warning lead times from 11 minutes to 15 minutes by 2008 and save \$2.4M in FY 2006 from the total cost of the NEXRAD Product Improvement Program. The ORDA systems, when implemented, will double the range for detection of small tornadoes from 120km to 240km, and increase coverage area for small tornadoes by 80%. When fully implemented (end of FY 2010), Dual Polarization technology will enable NWS forecasters to provide better rainfall estimates, better identify different forms of precipitation, and provide information on aircraft icing potential. Improvements to data assimilation and modeling systems using NEXRAD data will result in improvements to three day precipitation forecast accuracy from 26% to 29% by FY 2010.

FY 2003 Accomplishments:

- Began full scale development of ORDA

FY 2004 Accomplishments:

- Complete development of ORDA
- Begin full scale development of dual polarization technology

FY 2005 Plans:

- Complete ORDA testing
- Begin full scale development of dual polarization technology

FY 2006 Plans:

- Deploy 101 ORDA Units
- Complete requirements and functional analysis for dual polarization capability; award development and production contract

Radiosonde Replacement Program: The NWS radiosonde network provides upper-air weather observations; the primary source of data required by NWS numerical weather prediction models, which form the basis of all NWS forecasts for day 2 and beyond. Observations of temperature, pressure, humidity, and wind speed/direction are taken twice a day at 102 locations nationwide and in the Caribbean using a balloon-borne instrument (radiosonde) which transmits the data via radio signal to a ground receiving station usually located at a Weather Forecast Office (WFO), where it is processed.

The current ground receiving system is obsolete and not maintainable due to the escalating costs of scarce replacement parts and unavailability of certain components. Repairs have more than doubled over the past 5 years. Only two of the sites have fully functioning transponder decks, used for tracking a

radiosonde after the radiosonde is carried over the horizon. Wind observations lost by this deficiency have resulted in model analyses misplacing the jet stream on certain occasions.

New frequency allocations require reduction in bandwidth on the frequencies used to transmit data from the radiosonde to the ground. Reallocation of frequency spectrum in 1999 has placed the radiosondes at risk of losing data, due to interference from other band users, and may force radiosondes to use frequencies that will increase interference with meteorological satellite operations. Both the radiosondes and the ground receiving equipment must be replaced at 84 sites operated or supported by the NWS in order to comply with new the frequency allocations. In addition, the PCs currently used for radiosonde data processing are IBM XTs and cannot support the Windows-based software required to manage the Global Positioning System (GPS) radiosonde data. Finally, new surface observing instrumentation is necessary to calibrate the accuracy of the radiosonde at the point of release.

The FY2006 Budget will allow a total of 90 of the 102 sites to be replaced. NWS will investigate a cost-effective Integrated Upper Air Observing Systems (IUOS). The IUOS will consist of a combination of radiosonde, aircraft upper air data, satellites, and profilers.

FY 2003 Accomplishments:

- Deployed 10 RRS systems to the Caribbean
- Deployed 43 of 88 surface observing systems
- Initiate contracting actions for second GPS radiosonde supplier

FY 2004 Accomplishments:

- Awarded full-rate production contract for GPS radiosonde
- Completed system testing
- Completed deployment of surface observing system
- Began testing of pre-production prototypes from second GPS radiosonde supplier

FY 2005 Plans:

- Complete operational testing
- Deploy 5 RRS systems for a total of 15
- Continue testing of pre-production prototypes from second GPS radiosonde supplier

FY 2006 Plans:

- Deploy 18 RRS systems for a total of 33
- Award full-rate production contract to second GPS radiosonde supplier

Cooperative Observer Network Modernization (COOP): The COOP modernization will provide the United States with a network of accurate, near real-time surface weather data (temperature and precipitation) obtained with state-of-the-art measurement, monitoring, and communication equipment. Quality controlled, higher density, real-time surface data will improve temperature forecast skill, river height forecast error, drought monitoring resolution, hydrology planning, and energy optimization for NWS customers. Improved sensors, including wind data, can provide timely data in response to homeland security events or disasters. Benefits and outcomes are summarized in the table below. The objective of COOP modernization, completing the program started in FY 2003, is to deploy or upgrade up to 8,000 modernized sites.

The COOP modernization instrument suite will include gauges to measure temperature, precipitation, and snow depth. In addition, the instrument suite can be upgraded to include surface wind measurement in support of Homeland Security and density of particles less than 2.5 microns in diameter for both EPA air quality and Homeland Security. Each instrument suite will include the communications necessary to transmit observations in near time to a central location from which the data can be monitored, quality controlled and disseminated.

In FY 2003 and FY 2004, a low-cost, standardized, climate/weather observing system supporting federal multi-agency requirements and requirements of all climate and weather data users was developed and deployed at specified sites and used as a proof of concept and risk reduction. The goal is to a network of 8000 modernize systems. Actions include:

- Modernizing temperature and precipitation gauges at locations identified by Regional Site Selection Teams
- Adding automated data communication, dissemination, & archiving at these sites:
 - Temperature and precipitation data reported in real time*
 - Snowfall data reported daily*
- Improving spatial distribution (increase density in the Western United States & Alaska)
- Rigorous quality assurance of network data that are made available in real time through a distributed network of mirrored servers validated by professional staff at an operational central monitoring facility
- Disseminating all data via internet and by other means

FY 2002: 118 temperature demo sites deployed;

FY 2003/2004: Prototypes designed, integrated with 4 prototypes installed and 100 modernized stations acquired

FY 2005: 100 fully modernized site deployed in the Northeast; (includes upgrade of 40 temperature demo sites); Operate and maintain modernized COOP stations; add public/private mesonet partnerships (50 sites), perform OT&E of data monitoring and processing system

FY 2006: Modernize 189 stations (111 new and upgrade remaining 78 temperature demo sites) in North East for a total of 293 modernized stations (This completes the New England Modernization with 220 sites)

Begin implementation of the nationwide COOP modernization- The National Cooperative Mesonet with the addition of 335 partner public/private mesonets.

Each modernized COOP site will automatically collect data for temperature and precipitation. Selected stations will be expanded to also collect soil moisture and wind data. The potential will exist to collect other data as well. These data will be transmitted in real time via the National Law Enforcement Telecommunications System and other communications technology to a central processor from which the data will be disseminated to WFOs, NOAA's National Climate Data Center (NCDC), and other users. Data will also be available on the Internet. Data will be temporarily archived at each site and the central processor and for the long term at NCDC. Near real time data will be used in computer models to enhance short-term temperature forecast accuracy and will be used in tandem with information from weather radar to improve flood and flash flood forecasts.

NWS Telecommunications Gateway Legacy Replacement: The NWSTG is the NWS communications hub for collecting and distributing weather information to its field units and external users. Replacing the NWSTG system with up-to-date technology will reduce the current delays in collecting and disseminating data by reducing transit time through the NWSTG. The replacement will ensure reliable delivery of NWS products to users and will fully capitalize on better observation data and prediction models to improve services. In FY 2006, NWS will conclude a three-year effort to replace the National Weather Service Telecommunications Gateway (NWSTG) switching system and repair and upgrade NWSTG facilities.

FY 2004 Accomplishments:

- Post RFI for replacement solutions
- Acquire communications matrix switch
- Acquire FEP servers
- Acquire redundant UPS
- Modify cooling system
- Correct electrical system deficiencies

FY 2005 Plans:

- Acquire enterprise servers and FEP
- Acquire enterprise file system
- Continue facility upgrade activities
- Design and implement new internal network

- Initiate transition from dedicated point-to-point based wide area network to IP network architecture

FY 2006 Plans:

- Build and test enterprise servers and file system
- Complete facility upgrade activities
- Implement NWSTG legacy replacement system

Weather and Climate Supercomputing: The cyclical upgrade of the NWS weather and climate supercomputing capability is intended to procure the computing and communications equipment needed to receive and process the increasing wealth of environmental data acquired by modernized observing systems, process improved and more sophisticated numerical weather prediction models, and stay current with the supercomputing technology the market has to offer. Execution of this program promotes public safety and the protection of property by providing the NCEP with the computer systems that are capable of producing more accurate NWS climate and numerical weather prediction (NWP) guidance products for hurricanes, severe thunderstorms, floods, and winter storms. Additionally, the supercomputing system more accurately forecasts large-scale weather patterns in the medium (3 to 10 days) and extended range (30 days), plus forecasts of major climate events such as El Niño and La Niña. In addition, the computer upgrades will improve the delivery of products to the field and provide system users with enhanced productivity. These products and services will lead to significant economic benefits for users, like the agriculture, construction, and transportation industries.

FY 2003 Accomplishments:

- Transitioned Class VIII computer operations to the new Central Computer System (CCS)
- Began operational use of the new CCS beginning in June
- Added “on-call” 4 per day run to support fire weather services using 8km Non-hydrostatic Mesoscale Model
- Implemented the following NWP model improvements:
 - 55Km resolution Global Forecast System from 75 Km (medium range and aviation forecasting).
 - Upgraded physics into operational GFDL hurricane forecast model
 - Enhancements to mesoscale Eta analysis and model physics

FY 2004 Accomplishments:

- Deliver and install upgraded Central Computer System (CCS)
- Deliver and install backup computer
- Implemented the following NWP model improvements:
 - Expand vessel icing products model to a global domain
 - Expand Wavewatch III wave model runs from 168 hours to 180 hours

- Implement downscaled GFS with Eta Extension (DGEX) (extends the information content of medium range model prediction fields to finer scales for use with Interactive Forecast Preparation System (IFPS))
- Extend 105 km resolution of Global Ensemble Forecast system from 84 to 180 hours, increase runs from two to four times daily
- Implement CDC ensemble week-2 forecast system into operational suite
- Implement new Climate Forecast System
- Earlier delivery of mesoscale Eta model forecasts
- Implement one-day air quality forecast for NE U.S.
- Implement two member WRF ensemble
- Enhancements to mesoscale Eta analysis and model physics

FY 2005 Plans:

- Global Forecast System: 45 km / 64 levels (currently 55 km/64 levels)
- Rapid Update Cycle: 13 km (currently 20 km)
- Global Ensemble: 90 km/42 levels with 30 members (currently 105 km/28 levels with 10 members)
- Short Range Ensemble Forecast: 20 km with 20 members (currently 48 km with 15 members)
- Six member WRF Ensemble in hi-resolution (8 Km) window

FY 2006 Plans:

- North American Early Guidance System: 10 km WRF Non-Hydrostatic Mesoscale Model (currently 12 km Eta)
- Implement the following Numerical Weather Prediction (NWP) model improvements:
- 13 Km WRF capability in Hurricane model
- Increase Global Ensemble members to 50 from 30
- Short Range Ensemble Forecast: 18 km and 20 WRF members (from 20 km and 20 non-WRF members)
- Enhancements to Global Forecast System analysis and model physics

Base activities support the objective, “Advance understanding and predict changes in the Earth’s environment to meet America’s economic, social, and environmental needs” under the Department of Commerce strategic goal of “Observe, protect, and manage the Earth’s resources to promote environmental needs.”

PROPOSED LEGISLATION:

None.

SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Line Item: Systems Acquisition					
ASOS	5,071	4,608	4,675	4,675	-
AWIPS	13,936	12,708	12,894	12,894	-
NEXRAD	10,918	10,665	10,820	8,460	(2,360)
NWSTG Legacy Replacement	2,770	2,476	2,512	500	(2,012)
Radiosonde Network Replacement	6,137	6,285	6,376	4,387	(1,989)
Weather and Climate Supercomputing (WW)	19,038	19,322	19,285	19,285	-
Weather and Climate Supercomputing Backup	7,073	7,045	7,148	7,148	-
Cooperative Observer Network Modernization	-	864	877	4,277	3,400
NWS Coastal Global Observing System	-	-	-	1,497	1,497
Complete and Sustain NOAA Weather Radio	-	-	-	5,650	5,650
All Hazard National Warning Network: NOAA Weather Radio	5,442	-	-	-	-
Strengthen US Tsunami Warning Network	-	-	-	3,530	3,530
TOTAL	70,385	63,973	64,587	72,303	7,716
FTE	34	54	54	54	-

PROGRAM CHANGES FOR FY 2006:

Next Generation Weather Radar (NEXRAD) (-0 FTE and -\$2,360,000): NOAA requests a net decrease 0 FTE and \$2,360,000, for a FY 2006 total of \$8,460,000 to reflect the completion of contract obligations for open systems radar detection (ORDA) and a ramp-up in dual polarization development efforts.

FY 2006 Plans:

- Deploy 101 ORDA Units

- Complete requirements and functional analysis for dual polarization capability; award development and production contract

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
NEXRAD Product Improvement								
Change from FY 2006 Base		(2,360)	(2,360)	(2,360)	(2,360)	(10,820)		
Total Request	61,025	8,460	8,460	8,460	8,460	-		94,865

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

NWS Telecommunications Gateway Legacy Replacement (-0 FTE and -\$2,012,000): NOAA requests a decrease of 0 FTE and \$2,012,000, to reflect the completion of one-time costs planned for the deployment of the NWS Telecommunications Gateway (NWSTG) Legacy Replacement. The remaining \$500,000 is needed to meet the requirement for cyclic IT refresh capability and avoid a future need to incrementally replace the NWSTG system.

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
NWSTG Legacy Replacement								
Change from FY 2006 Base		(2,012)	(2,012)	(2,012)	(2,012)	(2,512)		
Total Request	5,307	500	500	500	500	0		7,307

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Radiosonde Replacement System (-0 FTE and -\$1,989,000): NOAA requests a decrease of 0 FTE and \$1,989,000, for a FY 2006 total \$4,387,000 to reflect the reduced scope of total radiosonde acquisition. The FY2006 Budget will allow a total of 84 of the 102 sites to be replaced. NWS will investigate a cost-effective Integrated Upper Air Observing Systems (IUOS). The IUOS will consist of a combination of radiosonde, aircraft upper air data, satellites, and profilers.

FY 2006 Plans:

- Deploy 18 RRS systems for a total of 33
- Award full-rate production contract to second GPS radiosonde supplier

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
Radiosonde Network Replacement								
Change from FY 2006 Base		(1,989)	(1,989)	(1,989)	(1,989)	(6,376)		
Total Request	43,423	4,387	4,387	4,387	4,387	-		60,971

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Cooperative Observer Network Modernization (COOP) (+0 FTE and +\$ 3,400,000): NOAA is requesting an increase of 0 FTE and \$3,400,000, for a total of \$4,277,000 and 0 FTE to continue deployment of modernized COOP sites nationwide as NWS implements the “National Cooperative Mesonet”. The proposed COOP modernization will provide the United States with a network of accurate, near real-time surface weather data (temperature, precipitation, soil moisture) obtained with state-of-the-art measurement, monitoring, and communication equipment. Quality controlled, higher density, real-time surface data will improve temperature forecast skill, river height forecast error, drought monitoring resolution, hydrology planning, and energy optimization for NWS customers. Improved sensors, including wind data, can provide timely data in response to homeland security events or disasters. Benefits and outcomes are summarized in the table below. The COOP modernization, begun in FY 2003, will result in deployment or upgrade of up to 8,000 modernized sites.

Statement of Need

The COOP network forms a key national information database infrastructure used by NWS, other government agencies, the private sector, the public, and the global community. It cannot, however, meet the increased demand for higher density and real-time surface data demanded by weather sensitive industries (e.g. energy producers and the weather risk industry) and by both the public and private weather service sectors. The network is well suited for monitoring and detecting local, regional, and national climate variations and potential climate change. Yet, the current cooperative observer network is old and near the end of equipment life; it is increasingly difficult and expensive to sustain. Temperature and precipitation data are only available to forecasters and weather data users with a delay of one day to 2 months, precluding their use in the NWS short term warning and forecast process. Therefore data are not available in real time, the error level in NWS temperature forecasts is too high (almost ± 5 degrees Fahrenheit), river height forecast errors are on the order of 50%, and drought monitoring resolution is only as fine as a 10 county area. In addition, the current density of the network is non-uniform; gaps exist creating incomplete forecast and climate observations.

Proposed Actions

The goal is to modernize the COOP network nationwide with at least one observing site in each 20 x 20 mile grid square, either by upgrading an existing COOP site, installing a modernized COOP site, or by partnering with and collecting data from an existing private mesonet site. Private mesonets will be evaluated by NWS for use as part of the modernized network. In addition, NWS will seek partnerships with private, weather-sensitive industries for funding of part of the network. The NWS has conducted a network spatial study to identify current COOP sites to be upgraded and where to deploy new COOP sites or partner with existing private mesonet sites to meet the goal of having at least one COOP site located in each 20 x 20 mile grid square throughout the CONUS. Presently there are more than 11,000 COOP sites. The NWS plans to upgrade 8,000 of these sites. Most of the remaining sites will be decommissioned upon attrition of the current volunteer observers. Some Legacy sites will be retained to ensure reporting capability for snow depth and other local parameters. Determination of which sites to retain or decommission will be made during modernized COOP deployment.

The COOP Modernization instrument suite will include gauges to measure temperature, precipitation, and snowfall depth. In addition, the instrument suite can be upgraded to support drought monitoring by including soil moisture and temperature, to support Homeland Security with the addition of wind measurement (for dispersion modeling), and to measure density of particles less than 2.5 Microns in diameter for both EPA Air Quality and Homeland Security. Each instrument suite will include the communications necessary to transmit observations in real time to a central location from which the data can be disseminated.

In FY 2003 and FY 2004, a low-cost, standardized, climate/weather observing system supporting federal multi-agency requirements and requirements of all climate and weather data users was developed and deployed at specified sites and used as a proof of concept and risk reduction. The goal is to eventually deploy or upgrade modernized systems until 8,000 sites are installed. Actions include:

- Modernizing temperature and precipitation gauges at locations identified in the spatial density study
- Adding automated data communication, dissemination, & archiving at these sites:
 - Temperature and precipitation data reported in real time
 - Snowfall data reported daily

- Improving spatial distribution (increase density in the Western United States & Alaska)
- Expandable for other observational parameters including soil moisture, temperature, humidity, & evaporation
- Rigorous quality assurance of network data that are made available in real time through a distributed network of mirrored servers validated by professional staff at an operational central monitoring facility
- Disseminating all data via internet and other means.

FY 2002: 118 temperature demo sites deployed

FY 2003/2004: Prototypes designed, integrated with 4 prototypes installed and 100 modernized stations acquired

FY 2005: 100 fully modernized site deployed in the Northeast (includes upgrade of 40 temperature demo sites); Operate and maintain modernized COOP stations; add public/private mesonet partnerships (50 sites), perform OT&E of data monitoring and processing system

FY 2006: Modernize 189 stations (111 new and upgrade remaining 78 temperature demo sites) in North East for a total of 293 modernized stations (This completes the New England Modernization with 220 sites). Begin implementation of the nationwide COOP modernization- The National Cooperative Mesonet with the addition of 335 partner public/private mesonets.

Each modernized COOP site will automatically collect data for temperature and precipitation. Selected stations could also collect soil moisture data. The potential will exist to collect other data as well. These data will be transmitted hourly to a central processor from which the data will be disseminated to WFOs, NOAA's National Climate Data Center (NCDC), and other users. Data will also be available on the Internet. Data will be temporarily archived at each site or the central processor and for the long term at NCDC. Near real time data will be used in computer models to enhance short-term temperature forecast accuracy and will be used by weather radar to enhance flash flood forecasts.

Summary of outcomes and benefits for Nationwide Modernization:

Network Elements	Current Daily Reporting Sites	Goal Hourly Reporting Sites	Economic Benefits
Temperature	1,500	8,000	Save consumers \$30M/day per Degree; Improved Seasonal forecast improvement; improved short term zone temperature forecast improved fruit frost warnings; improved heat-health warnings
Precipitation	3,000	8,000	Local power prediction; Better water/drought Mgmt./ crop planning; improved flash flood forecasts.
Snowfall	1,500	6,000 (Daily)	Better water/drought mgmt./ crop planning/spring flood outlook improvement
Wind	0	8,000	Real time wind data for toxic substance dispersion (Homeland Security)

Performance Goal and Measurement Data

This increase will support the objective, "Advance understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs" under the Department of Commerce strategic goal of "Observe, protect, and manage the Earth's resources to promote environmental needs." Specifically, this increase supports the Weather and Water performance goal.

Performance Goal: Weather and Water

Performance Metric	Current Capability	FY06 without Increase	FY06 with Increase
Temperature and Precipitation Data Availability (Short Term Forecasts and Warnings and Climate Monitoring)	1 day - 2 months	1 day - 2 months	Available in real time
National 24 Hour Temperature Forecast Error	± 4.6° F	± 4.6° F	± 3.1° F
Network Spatial Density	Non-uniform density; Many gaps in West and Alaska	Non-uniform density; Many gaps in West and Alaska	At least one site per 20 x 20 mile square
Flood Forecast Error*	51%	51%	23%
Drought Monitor Resolution	10 county area	10 county area	1 county area
System Availability			95%

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
Cooperative Observer Network Modernization	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
Change from FY 2006 Base		3,400	3,400	3,400	3,400	3,400		
Total Request	864	4,277	4,277	4,277	4,277	4,277	163,908	186,157

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Coastal-Global Ocean Observing System (+0 FTE, +\$1,497,000): NOAA requests a total of 0 FTE and \$1,497,000 to establish a Coastal-Global Ocean Observing System (C-GOOS) in the NWS. The C-GOOS Program fulfills the U.S. coastal component of the international GOOS effort and addresses the recommendation of the President's Commission on Ocean Policy and the National Oceanographic Partnership Program to bring together government, industry and academia. In FY 2005 Congress provided NOS \$8,000,000 to add oceanographic sensors to the existing NWS marine observational

backbone. These new ocean measurements will provide definitive information on the effects of the changing climate on coastal U.S. communities; improve forecasts of ocean conditions which adversely impact coastline erosion and the fishing, tourism, and oil and gas industries. In FY 2005, Convert Weather Buoy funds will add sensors to 25 existing buoys and 10 Coastal Marine (C-MAN) stations for water temperature and salinity, wave direction and current speed and direction. In FY 2006, NOAA's C-GOOS will deploy new buoys, add the capability to enhance future buoys with biological and chemical oceanographic sensors to allow biological and chemical water sampling; provide information on locations of marine endangered or protected species; and monitor coral reef health. NWS will establish C-GOOS through an eight-year acquisition project managed and implemented by the NWS National Data Buoy Center. FY 2006 funding will provide for interfaces to new sensor types, addition of new buoys and system operation and maintenance for NOS' FY05 "Convert Weather Buoy" upgraded buoys.

Specifically in FY 2006 this request:

- (1) Completes the ocean instrumentation started by NOS' "Convert Weather Buoys Initiative" in FY 2005 which added the capability to measure water temperature and salinity, directional waves, and currents to the remaining existing buoys and coastal marine stations operated by the National Data Buoy Center;
- (2) Adds 10 moored buoys and 10 Coastal Marine Automated Network (C-MAN) units in data sparse off the coastal U.S. where the NWS lacks sufficient fixed observation platforms
- (3) Supports regional ocean observatories by providing expertise and resources to ensure that their data remains high quality and is in standard formats for entry into national and international networks;
- (4) Augments fixed observational sites with expendable platforms to provide data acquisition platforms in support of emergencies, special projects, or non-traditional missions;
- (5) Makes buoy and coastal platforms directly available to the other NOAA Line Offices as needed by them to fulfill their missions by collecting data when and where they need to do so; and
- (6) Provides for technology refreshment via a modest amount of advanced development funding for such things as moorings, power systems, and wireless communications.

Outcomes:

This proposal directly supports NWS goal of "Deliver Better Products and Services" and it specifically addresses the performance measures under "Improve the use, integration, quality and cost effectiveness of observations:"

- Complete modernization or replacement of the Marine Observation Networks;

- Support the Global Earth Observing System of Systems (GEOSS), the Global Ocean Observing System and Global Climate Observing System by building on NWS and other observing systems.

In addition, H. Kite-Powell et al., 1994 estimated that better weather and ocean forecasts could save as much as \$50K per ship for ships entering and departing U. S. ports. Alaska and New England are particularly vulnerable to delays that result from severe marine weather. Nationally the savings are estimated at \$1.8B (365 days X \$50K X 100 ships) annually. A 3% impact on reducing this National expense would save industry \$54M annually.

Performance Goal and Measurement Data

This increase will support the objective, “Advance understanding and predict changes in the Earth’s environment to meet America’s economic, social, and environmental needs” under the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth’s resources to promote environmental needs.” Specifically, this increase supports the Weather and Water Performance Goal.

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
NWS Coastal Global Ocean Observing System								
Change from FY 2006 Base		1,497	1,497	1,497	1,497	1,497		
Total Request		1,497	1,497	1,497	1,497	1,497	93,870	101,355

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Complete and Sustain NOAA Weather Radio (+0 FTE and \$5,650,000): NOAA requests 0 FTE and \$5,650,000, for NOAA Weather Radio (NWR). Funds will be used to complete NWR broadcast coverage of all areas in the United States identified as at high risk of severe weather events by establishing seventeen (17) new broadcast stations. Additionally, funds will be used to refurbish four hundred (400) stations established in the 1970s, eliminating single points of failure and improving network reliability.

NWR was designed to be and is used as a reliable, inexpensive means of communicating weather related warnings to the public. The existing infrastructure of NWR has tremendous potential for use communicating warnings and information about non-weather related hazards and emergencies. NOAA has had extensive meetings with the Department of Homeland Security, discussing the use of NWR as an all hazards warning system. National Weather Service received an appropriation of \$5.4M in FY 2004 to make NWR an all hazard warning network. NWR infrastructure as a national warning network consists

of over 900 existing broadcast stations; broadcast coverage that reaches 97% of the nation's population; and the ability to deliver the broadcasted message to individuals monitoring their own NWR receivers as well as the ability to reach millions of listeners and viewers since NWR signal enters the Emergency Alert System, which is monitored by television and radio license holders.

Statement of Need

The NOAA Weather Radio network requires the ability to broadcast to all areas identified in the United States as being at high risk of experiencing severe weather and to sustain a high level of reliability and maintainability.

NOAA categorizes 248 areas in the United States as being at high risk of experiencing severe weather. Severe weather includes tornados, hurricanes, flash floods, flooding, severe winter weather and severe marine weather. NOAA defines high-risk areas as areas that score above 225 points using NOAA Weather Radio Priority Weighted Value (PWV) system as defined in the *NOAA Weather Radio Prioritized Plan for Areas Lacking Coverage* dated February 2001. Points are accumulated based on the number of severe weather events, as documented in the NWS Weather Incident Report, and weather related fatalities over the past ten years. Additionally, population statistics for the areas are identified. The NWR Program Office reassesses the identification of high-risk areas annually. To achieve 100% coverage of high-risk areas, seventeen (17) additional NWR broadcast stations are needed.

In its efforts to sustain a high level of reliability and maintainability of NOAA Weather Radio, National Weather Service faces challenges due to equipment obsolescence and due to degraded reliability relative to that possible with newer technology equipment. Four hundred (400) NWR station transmitters are of 1970's vintage, employing vacuum tube technology from four different manufacturers. These older stations are less reliable than newer ones using solid-state transmitters. Older stations demonstrate mean time between failure (MTBF) rates of 6,000 hours, or one failure every 250 days. In comparison, newer solid-state transmitters demonstrate MTBF of over 10,000 hours, a 67% improvement. Furthermore, stations have single points of failure due to configurations that include single, instead of dual, transmitters and lack of backup power generators to ensure continued service in the event of primary electrical service failure. Combined, these factors significantly decrease reliability and availability and increase logistics and maintenance costs. Refurbishing these older stations and adequately funding operations and maintenance costs will allow NWR to meet expectations of availability as the nation's weather and all hazard warning system.

Proposed Actions

In FY2006, NWS' NOAA Weather Radio program office will manage the establishment of seventeen (17) new NWR sites, located to provide coverage to the remaining areas at high risk of severe weather. NWR program office will also refurbish seventy (64) older sites to eliminate single points of failure and improve reliability. The balance of funds in FY2006 will fund operations and maintenance costs of the network. The initial funding requested is summarized below:

- \$1,190,000 for the establishment of seventeen (17) new sites [\$70,000/site]
- \$3,392,000 for the refurbishment of seventy (64) older sites [\$53,000/site]
- \$1,068,000 for operations and maintenance of the NWR network

Actions proposed for the FY 06-10 time period, and their associated costs, are shown in the table below:

Category (\$ K)	FY 06
Establish 17 Stations in high risk areas	1,190
Refurbish older NWR stations	
Number of stations	64
Cost to refurbish	3,392
Operations & Maintenance	1,068
Total	5,650

Performance Goal and Measurement Data

This increase will support the objective, “Advance understanding and predict changes in the Earth’s environment to meet America’s economic, social, and environmental needs” under the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth’s resources to promote environmental needs.” Specifically, this increase supports the Weather and Water Performance Goal. This line item relates to a range of NWS performance measures, including tornado and flash flood warning GPRA measures because it increases the communication of those warnings to the public. Approval of this request will allow NWS to achieve its goal of delivering NWR coverage to all areas at high risk of severe weather events. It will also eliminate single points of failure and improve the reliability of NWR sites.

Performance Measures for NOAA Weather Radio

Performance Measure	FY04	FY06 Without Increase	FY06 with Increase	FY10
# High risk areas covered	241 of 258	241 of 258	258 of 258	258 of 258
Refurbish Sites				
• Site MTBF	• 6,000 hrs			• 10,000 hrs
• Single points of failure	• 400 sites			• None

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
Complete & Sustain NOAA Weather Radio								
Change from FY 2006 Base		5,650	5,650	5,650	5,650	5,650		
Total Request		5,650	5,650	5,650	5,650	5,650	1,750	30,000

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Strengthening the U.S. Tsunami Warning Program (+0 FTE and \$3,530,000): NOAA requests 0 FTE and \$3,530,000 to strengthen the U.S. tsunami warning program. Funds will be used to complete the planned capital acquisition of deep ocean assessment and reporting of tsunamis (DART) buoys for the Pacific Ocean Basin and the Caribbean/Atlantic Ocean region. Funds will also support the completion of PTWC facility expansion (anticipated to begin in FY 2005) to accommodate 24/7 operations. This budget request will complete the Administration's 2-year plan, proposed to begin in FY 2005, to strengthen the U.S. tsunami warning program in light of the December 26, 2004 Indian Ocean Tsunami.

Expanded monitoring capabilities throughout the entire Pacific and Caribbean basins and significant portions of the mid Atlantic will provide tsunami warning capability for regions bordering half of the world's oceans.

Statement of Need

The Indian Ocean Tsunami focused world wide attention on the devastating effects of such an event in the absence of an effective tsunami detection, warning, and mitigation program. Currently, the U.S. operates a Pacific Basin tsunami warning program comprised of 6 DART buoys which are insufficient to effectively detect and warn for tsunamis generated in the South or Eastern Pacific. Additional DART buoys sited along known subduction zones in the Pacific Ocean, Atlantic Ocean and Caribbean Sea are needed to detect tsunamis. In total, a 32 DART buoy array is required in the Pacific Ocean Basin and 7 DART buoys are required in the Caribbean/Atlantic. Since tsunamis are generally generated by earthquakes NOAA also needs to improve the availability of real-time seismic data and upgrade infrastructure for better earthquake detection and warning, particularly for local seismic events.

Proposed Actions

In FY2006, NWS will purchase 10 spare DART buoys, purchase 3 redundant DART buoys for Alaska, complete the seismic sensor upgrades in both the Pacific and the Caribbean and complete the expansion of the PTWC Facility:

In FY 2005, the tsunami warning system expansion plan calls for:

- Procuring 32 new DART Buoys (PAC)
- Procuring and installing 38 new sea level monitoring/tide gauge stations (ORF)
- Providing 24/7 warning coverage at the Pacific and Alaska Tsunami Centers (ORF)
- Upgrading 20 NWS-owned seismometers used to improve Local Tsunami Warning capabilities (PAC)
- Expanding Tsunami Ready program to improve community preparedness (ORF)
- Beginning Tsunami Inundation Mapping in the Caribbean/Atlantic/Gulf of Mexico (ORF)

In FY 2006, the tsunami warning system expansion plan calls for:

- Installing 20 new DART Buoys (ORF)
- Procuring 10 spare buoys for replacement purposes (PAC)
- Procuring 3 redundant DART buoys for Alaska to insure continuity of data in harsh seas off Alaska (PAC)
- Operating and maintaining 38 new sea level monitoring/tide gauge stations (ORF)
- Completing the expansion of the PTWC Facility to accommodate 24/7 Operations (PAC)
- Providing 24/7 warning coverage at the Pacific and Alaska Tsunami Centers (ORF)
- Completing upgrade of 20 NWS-owned seismometers used to improve tsunami detection (PAC)
- Expanding Tsunami Ready program to improve community preparedness (ORF)
- Continuing Tsunami Inundation Mapping in the Caribbean/Atlantic/Gulf of Mexico (ORF)
- Expanding Tsunami Mitigation Activities through the NWS/ITIC (2 FTEs)

Performance Goal and Measurement Data

Performance Measure	FY04	FY06 Without Increase	FY06 with Increase	FY10
Tsunami False Alarm Rate	75%	75%	0%	0%
Tsunami Warning Lead Time (minutes)				
• Local Tsunamis	• 15 - 30	• 15	• 5-15	• 5-15
• Distant Tsunamis	• 30 - 60	• 30	• 15-30	• 15-30
		• 30		
		-		
		60		

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
Strengthen the U.S. Tsunami Warning Program								
Change from FY 2006 Base	0	3,530	1,850	350	350	350	1,750	8,180
Total Request	0	3,530	1,850	350	350	350	1,750	8,180

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

National Environmental Satellite, Data, and Information Service
Activity: Systems Acquisition

GOAL STATEMENT:

The goals of the Geostationary Operational Environmental Satellite (GOES) program are to continue the procurement of spacecraft, instruments, launch services, and ground systems equipment necessary to maintain an uninterrupted flow of environmental data to users.

The GOES series of satellites fall under NOAA's Mission Support goal, and support NOAA's other strategic goals to protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management approaches; to understand climate variability and change to enhance society's ability to plan and respond; to serve society's needs for weather and water information; and to support the Nation's commerce with information for safe and efficient transportation (e.g., commercial aviation, utilities, commercial shipping, etc).

GOES data provides:

- Cloud images and precipitation estimates for hurricanes and other coastal storms;
- NOAA Coast Watch sea surface temperature (SST) products for locating commercial and sport fish as well as protected marine species;
- New research products, such as ocean surface currents, that support both ecosystems management and safety of marine navigation;
- Primary information in the Nation's Climate Reference Network, providing reference quality data for surface temperature and precipitation monitoring;
- Images of the United States and adjacent ocean areas to enable the detection of hurricanes and other major weather events;
- Data collection from remote fixed observing platforms such as buoys and rain gauges for use in numerical weather prediction models and flood/drought assessments;
- Weather information to emergency managers for use in times of severe weather and during other disasters;
- A means to obtain quantitative environmental data such as temperature, moisture, wind, radiation and solar energy particle flux for use in weather predictions, hydrometrological flux, climate long term trending, ecosystems management, commercial economic gain, and transportation safety; and
- Unique monitoring capabilities that support air, land, and marine transportation.

The NOAA family of polar satellites (i.e., Polar-orbiting Operational Environmental Satellites (POES), and National Polar-orbiting Operational Environmental Operating Satellites System (NPOESS)), instruments, and processing systems are also Mission Support programs, and provide support for all of the other strategic plan goals, and NOAA's cross-cutting priorities.

Polar satellites provide a continuous flow of global environmental observations in support of operational requirements for:

- Environmental monitoring, and weather and marine forecasting;

- Climate assessment and change prediction;
- Detecting weather systems and significant environmental events such as volcanic eruptions, oil spills, and wildfires;
- Measuring atmospheric ozone and the space environment;
- Collecting environmental data from other surface platforms such as buoys; and
- Performing search and rescue functions.

BASE DESCRIPTION:

Geostationary Operational Environmental Satellite (GOES): The GOES system provides an uninterrupted, continuous flow of data and information that meets customers' spatial, temporal and accuracy requirements, providing significant customer benefit within an established life cycle cost target. The procurement of GOES satellites is a cooperative venture between NOAA and the National Aeronautics and Space Administration (NASA). NOAA defines requirements, manages, funds, implements system integration, procures ground segments and operates the GOES satellites. NASA serves as the agency with multi-disciplinary engineering expertise, develops detailed system specifications, procures and launches the spacecraft, and assists NOAA in system integration. For the GOES-R series the roles and the responsibilities of NOAA and NASA are being re-examined and possibly realigned to better meet each agency's charter and strategic goals.

NOAA GOES satellite systems are designed, developed, acquired and operated as a single end-to-end system. The system includes the observing platform (satellites); command and control of the platform; product generation and distribution; archive and access; and user interface. GOES contributes to an Integrated Global Observation System; is defined as an end-to-end approach linking requirements to services; delivers critical real-time data and information needed for sound decision making; addresses needs to support expanded climate services; and works with global partners.

GOES observations allow continuous monitoring from the same angle during the tracking/detection of severe storms, atmospheric moisture deltas, mesoscale scanning, currents flow dynamics, and atmospheric chemical (particle) that cannot be achieved from a non-stationary orbit without increased error rates and lost data segments. NOAA maintains an on-orbit spare to complement the two operational GOES satellites. This on-orbit spare philosophy allows NOAA to quickly replace a failed satellite by re-positioning an on-orbit satellite. To facilitate this strategy, NOAA plans the launch of the next satellite to coincide with the planned switchover of the on-orbit spare to operational status.

GOES-I SERIES: Fiscal Year 2006 is the last year of funding for on-orbit support.

GOES-N SERIES: The NOAA GOES program includes the development, procurement, and launch of the next series of GOES satellites, the GOES-N series. The spacecraft contract for the GOES-N series is a firm fixed price contract with delivery on-orbit. The GOES-N series program also includes separate contracts for the instruments, one for the Imager and Sounder, and one for the Solar X-ray Imager.

GOES-R SERIES: The GOES-R program will complete architecture studies, technology development, design, fabrication, integration and testing, and end-to-end system integration to support an initial GOES-R launch date of September 2012. End-to-end system integration refers to the acquisition of an on-orbit satellite including the spacecraft, instruments, GOES unique communications services, and launch services; the command, control, and communications and product generation and distribution functions currently performed by Satellite Services; the archive and access of all data and products; and the user interface function providing data to critical users and forecasters. A single prime contract is being contemplated to acquire the GOES-R end-to-end system. The archive and access function will be provided by NOAA's CLASS system. This end-to-end integration requires the acquisition, deployment, maintenance, and operations of the space and launch segments from FY 2012 through FY 2029.

Polar-orbiting Operational Environmental Satellite System: Currently, the polar satellite program consists of NOAA's Polar-orbiting Operational Environmental Satellites (POES) and the National Polar-orbiting Operational Environmental Satellite System (NPOESS). POES is NOAA's current operational polar system, with two more satellites left in the series (NOAA N and NOAA N'). NPOESS is an acquisition program that is the follow-on program mandated by Presidential directive to replace POES and the Department of Defense's (DOD) Meteorological Satellite Program (DMSP). NPOESS Data Exploitation (NDE) is a polar-related project that is still in development, planning, and acquisition.

Polar-orbiting Environmental Satellite (POES). The POES system is to provide daily global observations of weather patterns and environmental measurements of the Earth's atmosphere, its surface and cloud cover, and the proton and electron flux at satellite altitude; and to establish long-term data sets for climate monitoring and assessment and climate change predictions. Since the beginning of the POES program, environmental data and products acquired by its satellites have been provided to users around the globe.

NOAA has the responsibility to provide forecasts and warnings for the United States, its territories, adjacent waters and ocean area, for the protection of life and property and the enhancement of the national economy. This mission requires an enduring capability to acquire global data, and the capability to process and disseminate to central processing centers and distributed direct users, environmental data on an extensive spatial range (global, regional and local) within a variety of time scales (minutes to days). These data include, but are not limited to: global imagery; cloud and precipitation parameters; atmospheric profiles of temperature, moisture, wind, aerosols and ozone; surface conditions concerning ice, snow and vegetation; ocean parameters of sea temperature, color and state; solar and in-situ space environment conditions. These data are critically needed for:

- Severe storm and flood warnings;
- Tropical cyclone (hurricane reconnaissance and warnings);
- Hydrologic forecasts;
- Forecasts of the ocean surface and internal structures;
- Medium range forecast outlook (out to fifteen days);
- Solar and space environmental forecasts;
- Aviation forecasts (domestic, military, and international);

- Forecasts of ice conditions;
- Seasonal and inter-annual climate forecasts;
- Decadal-scale monitoring of climate variability;
- Assessment of long-term global environmental change;
- Environmental air quality monitoring and emergency response;
- Detection and analysis of fires and volcanic eruptions; and
- Short-term and mesoscale forecasts.

In September 2003, the POES spacecraft, NOAA-N', was damaged while under construction. The incident occurred while a NASA contractor was performing an operation that required a rotation of the satellite in its construction platform. NOAA has worked out an agreement with the contractor to rebuild the satellite in order to meet the planned FY 2008 launch.

National Polar-orbiting Operational Environmental Satellite System (NPOESS): In 1994, the decision was made to integrate the Nation's civil and military polar-orbiting meteorological satellite systems into a single, national system capable of satisfying both civil and national security requirements for space-based, remotely sensed environmental data. These systems include the NOAA POES system and DOD's DMSP. As a result, NOAA, DOD, and NASA formed a tri-agency Integrated Program Office (IPO) to develop, manage, acquire, and operate the new NPOESS.

Through NPOESS, which is funded jointly by NOAA and the U.S. Air Force, the U.S. government is substantially reducing duplication of efforts by satisfying the requirements of the civil and national security communities with one system. The first result of the NPOESS program was the transfer of DMSP satellite control from the U.S. Air Force Space Command to the IPO. The command, control, and communications functions for the DMSP satellites and the POES satellites are now combined at the NOAA Satellite Operations Control Center (SOCC) in Suitland, Maryland. The launch of the DMSP F-15 satellite in December 1999 resulted in the first DMSP satellite launched and controlled by the NOAA SOCC.

NPOESS is also initiating cost effective efforts to reduce future operational risks by executing early design and fabrication of critical instruments and by leveraging instrument technology from mature satellite development programs at NASA and other agencies. Early flight demonstration of key systems will ensure that new sensors are flown in space, algorithms are tested, and that new, high volume satellite data streams can be processed and effectively utilized by both civilian and military users before the first operational NPOESS spacecraft is launched. NOAA will accomplish this effort mainly through the NPOESS Preparatory Project (NPP), which will fly instruments that are precursors to NPOESS-era operational instruments. NPP is a risk reduction mission for NPOESS and is scheduled for launch in November / December of 2006.

NOAA, NASA, and USGS will implement the LANDSAT continuity plan as outlined in the August 2004 OSTP policy memo. NASA is expected to procure two land imaging sensors for incorporation on the first and fourth NPOESS satellites as well as provide funding to integrate the first sensor onto the NPOESS platform. NOAA will be responsible for providing the funding to integrate the second sensor as well as future continuity of the data set. USGS is expected to develop the ground systems necessary to process, archive, and distribute LANDSAT data.

Advanced NPOESS visible, infrared, and microwave sensor suites will deliver higher resolution atmospheric, oceanic, and terrestrial data, enabling more accurate short-term weather forecasts and severe storm warnings. NPOESS also offers the added advantage of serving the longer-term data continuity requirements of the climate community for improved global climate assessment and prediction. NPOESS will provide improved measurements and information about the space environment necessary to ensure reliable operations of space-based and ground-based systems, as well as continue to provide surface data collection and search and rescue capabilities. The tri-agency NPOESS program is well along the path to creating a high performance, integrated polar satellite system that will be more responsive to user demands, will deliver higher capability than is available today, and will cost less than maintaining separate systems to meet both civilian and military requirements.

LANDSAT

NOAA, NASA, and USGS will implement the LANDSAT continuity plan as outlined in an August 2004 Office of Science and Technology Policy (OSTP) policy memo. NASA is expected to procure two land imaging sensors for incorporation on the first and fourth NPOESS satellites as well as provide funding to integrate the first sensor onto the NPOESS platform. NOAA will be responsible for providing the funding to integrate the second sensor as well as future continuity of the data set. USGS is expected to develop the ground systems necessary to process, archive, and distribute LANDSAT data.

Comprehensive Large Array data Stewardship System (CLASS): NOAA is responsible for the stewardship of over one petabyte of environmental data and information, which is expected to grow to well over 18 petabytes by 2011. NOAA spends more than one billion dollars each year collecting environmental data in support of its mission. In the near future, NOAA will launch the first NPOESS, which will provide a 10,000 percent increase in data volume per satellite. CLASS is a data archiving and access system that will improve the quality and stewardship of NOAA's environmental data and information. By providing efficient, secure, cost-effective access to NOAA's environmental data via CLASS, NOAA will be supporting key research challenges identified by the U.S. Global Change Research Program, such as natural climate patterns, global monsoon, and land-atmosphere and ocean-atmosphere exchanges.

NOAA is enhancing its current archiving capabilities into a CLASS System that will be fully operational and managed at the enterprise level. This system will allow efficient management of high volumes of data that are critical to the users and the scientific community. The target data originates from GOES, POES, NPOESS, DMSP, and the National Weather Service's Next Generation Weather Radar. Management of these data can be accomplished only through rapidly expanding storage capacity at the Data Centers and automating the means of data ingest, quality control, and access through phased systems procurement. The early implementation of this archive and access system has paved the way to accommodate additional massive data volumes from the Earth Observing System Satellites.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
CLASS								
Change from FY 2006 Base		0	0	0	0	0		
Total Request	9,501	6,541	6,541	6,541	6,541	6,541	250,000	292,206

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Earth Observing System Data Archive & Access System Enhancement: NASA's Earth Observing System (EOS) data will be integrated into CLASS for archive and access. The expected large increases in data rates and volumes over the next several years from EOS data alone will far exceed the capacity and capabilities of the NOAA National Data Centers.

Critical Single Points of Failure: This effort supports the continuity of critical operational satellite products and services during a catastrophic outage at the Suitland facility/systems and the World Weather Building in Camp Springs by providing backup capability for primary satellite products and services. The backup capability will result from NOAA's establishing a backup processing site at the Wallops Command and Data Acquisition Station, Wallops, Virginia. Prior to establishing the backup facility and turning off the FB 4 system, it will be necessary to complete the validation and testing of the new system. The first step in this process is to ensure continuity of operations by purchasing, installing, and testing new equipment in the new NOAA Satellite Operations Facility, which is scheduled for completion in FY 2005. The Wallops facility will become the operational backup site after the new site is operational and the old equipment from FB 4 in Suitland is transferred to Wallops. Standard information technology and business principles dictate that a contingency plan for continuity of services exists in the case of a catastrophic failure. Additional communications links to connect the Wallops backup location to the NOAA Science Center in Suitland MD will also be installed.

The NOAA Product Processing and Distribution Office is a critical single point of failure for every operational NOAA satellite product and service that NWS and other users rely on for weather information. Satellite data represents more than 99 percent of the input to numerical weather prediction models. Satellite products and services include POES products such as ozone, temperature and moisture sounder products; GOES Advanced Weather Interactive Processing System (AWIPS) remapped imagery, high density winds, precipitation estimates, sounder products; and non-NOAA satellite products from NASA, the DOD, Europe, Japan and India.

Base activities support both objectives under the Department of Commerce strategic goal of "Observe, protect, and manage the Earth's resources to promote environmental needs:"

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
Critical Single Points of Failure								
Change from FY 2006 Base		0	0	0	0	0		
Total Request	5,530	2,800	2,800	2,800	2,800	2,800	28,000	47,530

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

PROPOSED LEGISLATION:

None.

SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Line Item: Systems Acquisition					
Geostationary Systems	274,632	301,153	305,537	358,142	52,605
Subtotal: GOES	274,632	301,153	305,537	358,142	52,605
Polar Orbiting Systems - POES	113,179	104,230	105,746	102,673	(3,073)
Subtotal: POES	113,179	104,230	105,746	102,673	(3,073)
Polar Orbiting Systems - NPOESS	273,789	300,528	304,901	320,998	16,097
Subtotal: NPOESS	273,789	300,528	304,901	320,998	16,097
EOS & Adv. Polar Data Processing, Dist. & Archiving Systems	2,474	2,958	3,000	1,000	(2,000)
Subtotal: EOS	2,474	2,958	3,000	1,000	(2,000)
CIP - Single Point of Failure	2,769	2,760	2,800	2,800	-
Subtotal: CIP	2,769	2,760	2,800	2,800	-
Comprehensive Large Array Data Stewardship Sys (CLASS)	-	6,448	6,541	6,541	-
Coastal Remote Sensing	488	-	-	-	-
NPOESS Preparatory Data Exploitation	-	-	-	4,500	4,500
LANDSAT	-	-	-	11,000	11,000
TOTAL	667,331	718,077	728,525	807,654	79,129
FTE	158	115	115	115	-

PROGRAM CHANGES FOR FY 2006:

GOES: NOAA is requesting a net increase of \$52,605,000 for a total request of \$358,142,000 to continue the procurement of spacecraft, instruments, launch services, and ground systems equipment necessary to maintain an uninterrupted flow of environmental data to the users. This net increase is the result of the following proposed program changes:

GOES I-M: NOAA is requesting no change for a total of \$600,000 in FY 2006.

GOES-N Series (0 FTE, and -\$30,373,000): NOAA is requesting a decrease of \$30,373,000 for a total of \$117,042,000 in FY 2006. The NOAA GOES program continues the development, procurement, and launch of the next series of three GOES satellites – the GOES-N series. The spacecraft contract for the GOES-N series is a firm fixed price contract. The GOES-N series program also includes separate contracts for the instruments, one for the imager and sounder and one for the Solar X-ray Imager.

GOES-R Series (0 FTE, and +\$82,978,000): NOAA is requesting an increase of \$82,978,000 for a total request of \$240,500,000. Weather- and climate-sensitive industries, both directly and indirectly, account for approximately \$3.0 trillion of the United States gross domestic product (about one-third). Seasonal and interannual variations in climate, e.g. El Niño, led to economic impacts on the order of \$25 billion for 1997-1998. Average annual damage from tornadoes, hurricanes, and floods is \$11.4 billion with about 100 deaths annually. Approximately \$4 billion per year is lost in economic efficiencies as a result of weather-related air traffic delays. Lightning causes between \$4 and \$5 billion in losses each year in the civilian sector (Kithil, R., *21st Century Lightning Safety for Facilities & Structures*, October, 2002) with about 47 deaths and 303 injuries per year.

GOES-R series satellites alleviate these losses by:

- Reducing uncertainty in long-term climate projections by providing data with higher spatial and spectral resolutions
- Improving forecasts by providing more rapid image and sounder scans allowing forecasters to make more timely forecasts and provide longer lead times for warnings of hurricanes, tornadoes and other severe weather events (in the agricultural sector it is estimated that better forecasts can result in \$300 million savings annually)
- Providing improved continuous monitoring of solar flares and sunspots to allow utilities to plan for solar-induced power interruptions and manage systems to prevent massive outages.
- Providing more accurate sea-surface temperature data that supports better predictions of onset of El Niño events. This provides lead time for planners to adequately manage resources that are necessary to offset losses.
- Providing new research products, such as ocean surface currents, that support both ecosystems management and safety of marine navigation.
- Providing more accurate and timely warnings of the presence of airborne volcanic ash plumes that can seriously damage aircraft and jet engines and have the clear potential to cause serious aviation accidents.
- Providing improved infrared and new near infrared imaging distinguishing snow, ice, and fog to provide safe ground and air transportation and reducing economic inefficiencies.

- Providing finer spectral resolutions allowing air turbulence identification for aircraft routing and safety.

The initial phase of awarding and analyzing the architectural studies have been completed. FY 2006 requested funding will begin the engineering development and production activities for Hyperspectral Environmental Suite (HES), Solar Imaging Suite (SIS), Space Environmental In-Situ Suite (SEISS) and GOES Lightning Mapper (GLM), as well as continue Advanced Baseline Imager (ABI) development and production that was initiated in FY 2004.

Considering the continued success of the GOES-I series, the current GOES-N series implementation, and the planned GOES-R development schedule, the GOES planning launch schedule is provided as Figure 1.

Figure 1 – GOES Launch Schedule

Spacecraft	Availability Date	Planned Launch Date	Operational Date
GOES-N	Dec 2004	Dec 2004	
GOES-O	Dec 2006	Apr 2007	
GOES-P	Apr 2007	Oct 2008	
GOES-R*	Oct 2012	Oct 2012	Apr 2014
GOES-S*	Apr 2014	Apr 2014	Apr 2018

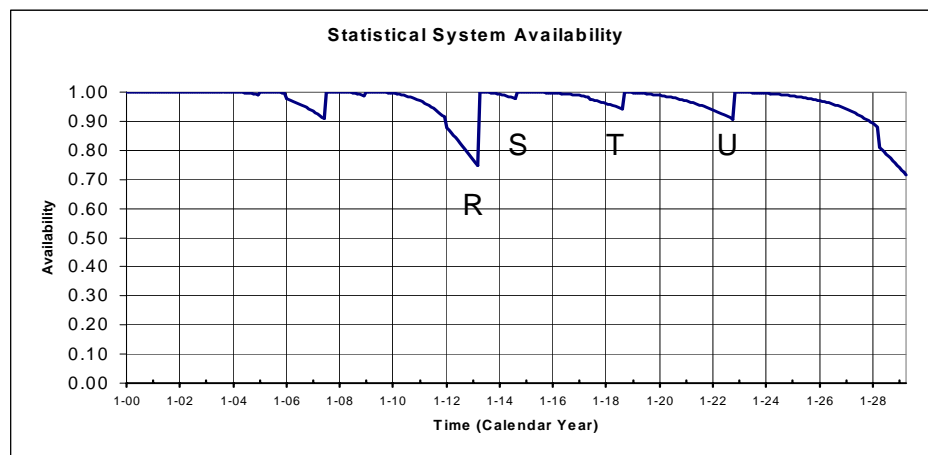
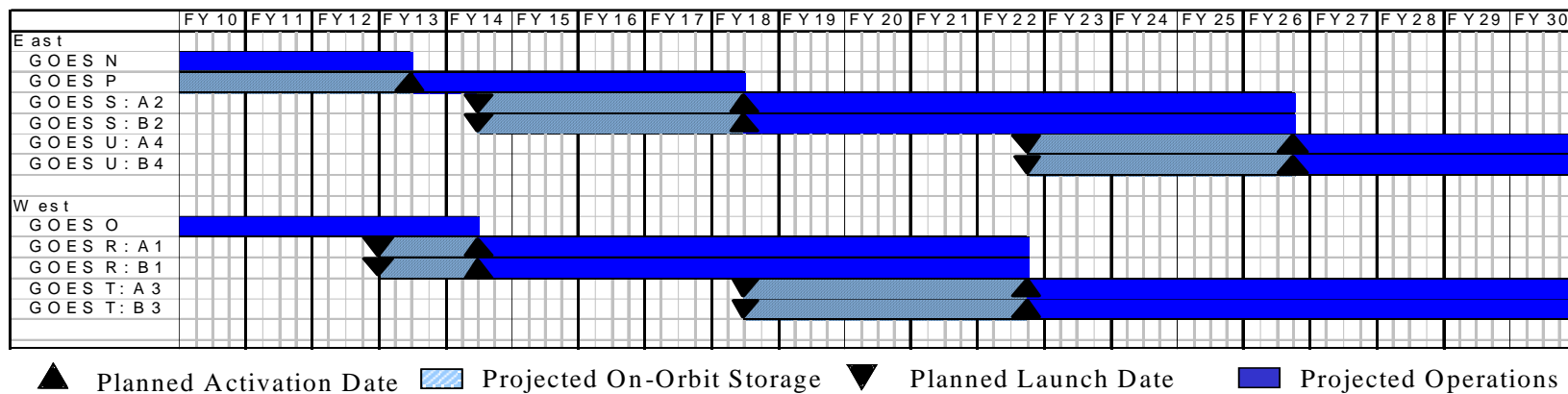
* Single or dual launch, based on architecture selected.

Figure 2, GOES-R Need Date and Statistical System Availability, shows that projected system availability ranges from nearly 100 percent to approximately 75 percent by the time GOES-R has completed the checkout phase, which is estimated as six months after a projected October 2012 launch. This means that there is a 25 percent chance, or risk, that there will be less than two fully functioning GOES satellites by April 2013.

As can be seen from the figure, this is approximately 15 percent worse than at any other time from today until 2012. Given that there is a period of eight years to the GOES-R launch, NOAA feels that this risk is acceptable by examining methods of shortening the GOES-R checkout time. However, it must also be noted that the risk curve in the spring 2013 time frame is very steep – even relatively short delays could have negative impacts to the availability of the system.

It should be noted that Launch and Early Orbit (L/EO) failures were not included in this availability analysis. These types of failures, which are significant drivers, are taken into consideration by determining the impact to the system availability given the proposed mitigation plan. The mitigation plan will use the replacement spacecraft and launch that Boeing is contractually required to provide within three years of L/EO failure coupled with the fourth set of ITT instruments and adjusting the remaining satellite launches. For example, if N failed, O would be accelerated to replace N, P would be accelerated to replace O, and the Boeing replacement satellite would be used to replace P.

FIGURE 2 - GOES-R Need Date



The following five critical elements were the principal factors assessed during the review of GOES R-Series delivery schedule.

- Satellite Continuity. A critical requirement for the GOES program is to provide constant coverage over the continental United States. That need drives a two-satellite constellation – GOES East and GOES West. A key factor in determining when to deliver satellites is the need to ensure continuity of this service based on the projected operational lifetimes of the satellites currently in operation, in storage (ground and/or on-orbit), or already procured, or planned to be procured. The projected operational lifetime of a satellite is based on its design life and predicted reliability
- Launch/Early Orbit (L/EO) Failure Mitigation. A satellite is subject to failure to attain orbit or to achieve initial operating condition on-orbit. Satellite procurement schedules must include consideration of these types of failures. Although the risk of these types of failures remains relatively constant from satellite to satellite (i.e., the individual probability of failure for each satellite is essentially constant), as time passes the cumulative risk of future failures increases.
- Unpredicted, Premature Failure Mitigation. In addition to predictable failures associated with the satellite design and the possibility of L/EO complications, unpredicted and premature failures to achieve design lifetime must also be taken into account. Some examples of these types of failures include previously undetected design/build/test flaws, unpredicted wear-out failures, commanding errors, and collision/debris damage. These types of failures can be mitigated by either rapid launch on failure response or on-orbit storage. On-orbit storage has been adopted for the GOES program because these satellites are launched via scheduled commercial vehicles.
- Production/Launch/On-Orbiting Testing Constraints. The cost of integrating and testing satellites, caused by the high cost of engineering teams and facilities, limit the ability to deliver more than one satellite at a time and must be considered. For example, if two satellites are needed within three months of each other to maintain continuity of service, production of the first must be accelerated to meet realistic production and launch schedules. In addition, the time to check-out a satellite and declare it operational must also be considered. This check-out period usually takes three months. However, for new satellites, this takes much longer – six months for certain individual capabilities and a year or more for the complete set of products and services.
- Fuel Reserves/On-orbit Storage Issues. While the storage mode for GOES is fairly benign and has a limited negative impact on satellite life, fuel reserves must be considered. Even during storage, a satellite's on-orbit fuel reserve is consumed to maintain station keeping. Launching a satellite too early can cause fuel limitations to be a significant service life-limiting factor.

Consideration of all of these factors led to the nominal projection of when to launch, store and operate the satellites. Once this nominal projection was derived, a statistical analysis was performed to assess the risk of providing continuity of service to the GOES national customers. Figure 2 on the previous page shows the nominal operations projection and describes the associated probable availability of the system.

Performance Goals and Measurement Data for GOES:

This increase supports NOAA's four strategic plan goals by providing the satellite infrastructure (maintenance, new, and operations) to provide the necessary observations. The specific funding in FY 2006 will support the performance goal of Weather and Water by providing the future observations necessary. This increase maps to the Department of Commerce's strategic goal 3: Observe, Protect and Manage the Earth's Resources to Promote Environmental Stewardship, as well as both of the objectives under this goal.

Performance Goal: Weather and Water.

Performance Measure	Without FY 2006 Increase	With FY 2006 Increase
Support NOAA's goals by acquiring GOES satellites on schedule with proposed capabilities	Lost capability in GOES-R satellite and resulting loss of improvements for mission performance	Critical path elements completed on schedule

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
GOES								
Change from FY 2006 Base		52,605	148,502	226,542	234,026	264,964		
Total Request	3,748,470	358,142	454,039	532,079	539,563	570,501	3,980,802	10,183,596

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Polar-Operational Environmental Satellite Systems (POES) NOAA Polar K-N' (-0 FTE, and -\$3,073,000): NOAA requests a decrease of \$3,073,000 for a total request of \$102,673,000 for the continuation of the POES program. POES is nearing the end of its production with two remaining satellites to be launched. On September 6, 2003, NOAA-N' was involved in a serious accident at the contractor's facility (Lockheed Martin). The damage has been assessed and estimated costs developed. NOAA has worked out an agreement with the contractor to rebuild the satellite in order to meet the planned FY 2008 launch.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
Polar Orbiting Systems-- POES								
Change from FY 2006 Base		(3,073)	(14,934)	(43,438)	(63,827)	(64,040)		
Total Request	1,953,602	102,673	90,812	62,308	41,919	41,706	0	2,293,020

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

LandSat (0 FTE and +\$11,000,000): NOAA requests an increase of 0 FTE and \$11,000,000, for a total request of \$11,000,000, to integrate Landsat sensors on NPOESS satellites C1 and C4. The sensors will be provided and paid for by NASA. This request provides for integrating the sensors on two satellites and providing continuity of the data through 2020. The United States Geological Survey (USGS) will develop the ground systems to process, archive, and distribute Landsat data. The out-year costs for C1 and C4 integration are as follows:

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
LANDSAT								
Change from FY 2006 Base		11,000	13,000	15,500	18,000	11,000		
Total Request	0	11,000	13,000	15,500	18,000	11,000	39,700	108,200

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Performance Goals and Measurement Data for LANDSAT:

This increase falls under the area of Mission Support as it provides data infrastructure (maintenance, new and operations) to deliver observations necessary to meet the performance goals. This increase maps to the Department of Commerce's strategic goal 3: Observe, protect and manage the earth's resources to promote environmental stewardship, as well as both of the objectives under this goal.

National Polar-orbiting Operational Environmental Satellite Systems (NPOESS) (0 FTE, and+\$16,097,000): NOAA is requesting an increase of \$16,097,000 for a total request of \$320,998,000 for the continuation of the tri-agency NPOESS program that will replace the NOAA POES program after completion of the current NOAA K-N' series of satellites. This request represents NOAA's share of the converged NOAA/DoD/NASA program. In FY 2006, funds are required to continue the development and production of the NPOESS instruments, including the Visible Infrared Image Radiometer (VIIRS), the Conical Microwave Imager Sounder (CMIS), the Cross-track Infrared Sounder (CrIS), the Ozone, Mapping and Profiler Suite (OMPS), the Aerosol Polarimeter Sensor (APS), and the Space Environmental Sensing Suite (SESS). The continued development of these instruments is critical to their timely and cost effective delivery to replace both the military and the civilian environmental spacecraft when needed.

In August 2002, NOAA selected Northrop Grumman Space Technology as the prime contractor responsible for building and deploying the total NPOESS program. FY 2006 funds are required to continue the acquisition and operations phase of the program, including total system architecture trades and design of the four major NPOESS segments: space; interface data processing segment; command, control, and communications; and launch support. Funding will also support mission readiness of antenna systems at high latitude mission recovery sites to support data acquisition functions for the NPOESS Preparatory Project (NPP). The NPP ground system must be in place to support a CY 2006 launch of the NPP spacecraft. This is a major element of the risk reduction program for NPOESS.

This request provides funding necessary to have the instruments and ground system in place to support a November 2006 launch of NPP and to have the first NPOESS satellite (C1) available for launch in FY 2010.

FY 2006 funding will be used to complete the instruments planned to be flown on NPP and to complete the ground systems and algorithm necessary to acquire, process and distribute NPP data. This data is necessary for continuity of NASA's long-term climate data records and for early risk reduction and calibration and validation essential to the first NPOESS satellite.

The following satellite launch schedule table is provided as an estimate:

	N	NPP Launch	NOAA N' Launch	C1 Launch Availability	C2 Launch Availability
FY 2004 President's Budget	06/04	05/07	03/08	10/09	12/09
FY 2003 Enacted Budget with Supplemental	06/04	11/06	03/08	12/09	02/10
FY 2006 Request	02/05	11/06	03/08	Not earlier than 01/10	Not earlier than 04/11

Performance Goals and Measurement Data for NPOESS:

This increase supports NOAA's four strategic plan goals by providing the satellite infrastructure (maintenance, new, and operations) to provide the necessary observations. The specific funding in FY 2006 will support the performance goal of Weather and Water by providing the future observations necessary. This increase maps to the Department of Commerce's strategic goal 3: Observe, Protect and Manage the Earth's Resources to Promote Environmental Stewardship as well as both of the objectives under this goal.

Performance measures supported are:

1. The percentage of planned contract milestones accomplished within 30 days of target, and
2. The number of new or improved products successfully transitioned into operational use within 30 days of target and having established quality control management procedures in place.

Performance Goal: Weather and Water.

Performance Measure	Without FY 2006 Increase	With FY 2006 Increase
Support NOAA's goals by acquiring NPOESS satellite on schedule with proposed capabilities	Delay in the NPOESS program and impact to mission goal requirements	Critical Path Elements Completed On Schedule

OUTYEAR FUNDING ESTIMATES								
(BA in Thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
Polar Orbiting Systems-- NPOESS								
Change from FY 2006 Base		16,097	36,375	38,962	(7,676)	68,971		
Total Request	1,250,277	320,998	341,276	343,863	297,225	373,872	1,149,189	4,076,600

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Earth Observing System (EOS) Data Archive & Access System Enhancement (0 FTE and - \$2,000,000): NOAA requests a decrease of \$2,000,000 and 0 FTEs for a total of \$1,000,000. At the \$1,000,000 level, NOAA will be able to preserve the most critical NASA EOS data per NOAA's long-term management agreement with NASA. NASA EOS data will be integrated into CLASS for archive and access. NOAA is responsible for the stewardship of over one petabyte of environmental data and information, which is expected to grow to well over 18 petabytes by 2011. The expected large increases in

data rates and volumes over the next several years from the Earth Observing System (EOS) data alone will far exceed the existing capacity and capabilities of the NOAA National Data Centers. NOAA will use the requested funds to procure additional media storage hardware and telecommunications equipment that NOAA requires to store the environmental data generated by the 100-times increase in data volume per satellite that will begin in the near future.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
EOS Data Archive and Access System Enhancement								
Change from FY 2006 Base		(2,000)	(2,000)	(2,000)	(2,000)	(2,000)		
Total Request	5,432	1,000	1,000	1,000	1,000	1,000	10,000	20,432

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

NPOESS Preparatory Project/NPOESS Data Exploitation (0 FTE, and+\$4,500,000): NOAA is requesting \$4,500,000 for the NPOESS Data Exploitation (NDE) project. NESDIS has the mandate to operate the Nation's environmental satellites, collect environmental observations, process, distribute and archive data, and make available key data sets for both operations and research. The NDE component of the NPOESS Preparatory Project (NPP) consists of processing and distribution of NPOESS products and services once the data have been delivered to NOAA.

NPOESS and NPP are part of a new environmental satellite program that promises to improve our observations of the earth, atmosphere, oceans and space environment. While the NPOESS contract awarded by the Integrated Program Office in August of 2002 covers the delivery of two satellites and the option to purchase four more satellites, it does not include product processing and distribution to NOAA's users and customers. In order to realize the benefits of NPOESS data, NOAA must implement capabilities to process NPOESS data records into useful products that meet the requirements of NWS and other civilian users. For example, NDE will be able to derive carbon-based products such as Methane, Carbon Dioxide and Carbon Monoxide from NPOESS observations. These gases tend to mask the atmospheric temperature and humidity observations sensed by NPOESS. By producing a better estimate of these gases, NDE will help the NWS to remove biases and improve weather forecasts. NDE will also assist the NOAA Climate Office by providing global estimates of these greenhouse gases.

NOAA requests \$4.5 million in Fiscal Year 2006 to begin the NDE initiative. The funding will start the development of the product generation and dissemination (PG&D) system in Suitland. The PG&D system will include new hardware and software to process the NPOESS products. The first phase of hardware procurement will be two IBM scalable processors, or equivalent computers. The software component includes the creation and testing of code

required to improve various product sets, and the design of software to facilitate the assimilation of NPOESS atmospheric sounding products into the NWS Numerical Prediction Models. The requested funding will also allow NOAA to study the communications links necessary to disseminate products and services to the user community.

Performance Goals and Measurement Data for NPP/NDE:

This increase supports NOAA's four strategic plan goals by providing the data infrastructure (maintenance, new and operations) to deliver observations necessary to meet the performance goals. The specific funding in FY 2006 will support the performance goal of Weather and Water by providing the future observations. This increase maps to the Department of Commerce's strategic goal 3: Observe, protect and manage the earth's resources to promote environmental stewardship, as well as both of the objectives under this goal.

Performance Goal: Weather and Water.

Performance Measure	Without FY 2006 Increase	With FY 2006 Increase
Support NOAA's Weather & Water goal by fully exploiting NPOESS satellite data IAW established schedule milestones	Delay in realizing tangible benefits in 3-5 day and El Niño forecasts based on new data from the NPOESS satellite	Ability to remain on schedule with established milestones for data initiatives based on the availability of new NPP/NDE satellite data.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
NPOESS Preparatory Data Exploitation								
Change from FY 2006 Base		4,500	4,500	4,500	4,500	4,500		
Total Request	0	4,500	4,500	4,500	4,500	4,500	45,000	67,500

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Program Support
Activity: Corporate Services

GOAL STATEMENT:

Continue the acquisition and improvement of major systems associated with financial management, facilities, and other functions of NOAA's overall corporate management.

BASE DESCRIPTION:

The objectives of this subactivity are to:

- Invest in the phased-in implementation of the Commerce Administrative Management System (CAMS)/NOAA financial-management system.
- Capture the costs of acquiring and/or improving capital assets used by NOAA in carrying out its varied missions.
- Realize procurement efficiencies, management accountability, and reflect full cost of acquisition and/or improvement of an asset.

PROPOSED LEGISLATION:

None.

SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Line Item: Corporate Services					
HCHB Infrastructure Repairs	(419)	-	-	-	-
CAMS/NOAA Financial Data System	(27)	-	-	-	-
AMNH	989	986	-	-	-
NOAA Maintenance - Backlog	4,948	-	-	-	-
NOAA Maintenance - Cyclical	2,523	-	-	-	-
Base/Admin Holdings/Ship Creek	(111)	-	-	-	-
Construction (Section 212)	6,065	-	-	-	-
TOTAL	13,968	986	-	-	-
FTE	-	-	-	-	-

PROGRAM CHANGES FOR FY 2006:

None.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
PROCUREMENT, ACQUISITION AND CONSTRUCTION
CONSTRUCTION FY 2006 OVERVIEW

SUMMARIZED FINANCIAL DATA

(\$ in thousands)

Procurement, Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
NOS					
Coastal and Estuarine Land Conservation Program					
Armand Bayou and Genoa-Red Bluff, TX	0	591	0	0	0
Bainbridge Island, WA	0	493	0	0	0
Bayou Liberty Watershed Wetlands Conservation	0	887	0	0	0
Buffalo Bayou, TX	0	1,183	0	0	0
Coastal and Estuarine Land Conservation Program	50,558	0	0	0	0
Dos Pueblos, CA	0	2,957	0	0	0
East Sandusky Bay, OH	0	1,479	0	0	0
Flats East Riverfront Park, Ohio	0	1,479	0	0	0
Hawaii CELP	0	2,957	0	0	0
Laughlin Cove, WA	0	1,971	0	0	0
Manahawkin Marsh, NJ	0	789	0	0	0
Maumee River Basin, Ohio	0	1,479	0	0	0
Maury Island	0	1,479	0	0	0
MD Chesapeake Bay	0	5,668	0	0	0
Mentor Marsh Lake County, Ohio	0	986	0	0	0
Middletown, RI	0	739	0	0	0
Mount Agamenticus to the Sea, ME	0	986	0	0	0
North Hampstead	0	986	0	0	0
Nulands Neck, MA	0	296	0	0	0
Orange Beach (Robinson Island) AL	0	986	0	0	0
Port Aransas Nature Preserve Wetlands Protection	0	2,957	0	0	0

Project					
Potomac Watershed, VA	0	2,957	0	0	0
Seacoast, NH	0	2,464	0	0	0
Southhold, NY	0	1,479	0	0	0
Southwest Alaska Conservation	0	986	0	0	0
Tomer Canyon	0	492	0	0	0
Wolf River Corridor	0	1,971	0	0	0
Subtotal, Coastal and Estuarine Land Conservation Program	50,558	41,697	0	0	0
NERRS Acquisition/Construction					
National Estuarine Research Reserve Construction and Land Acquisition	36,263	6,899	7,000	7,250	250
Elkhorn Slough, CA	0	1,971	0	0	0
Great Bay Partnership	0	7,885	0	0	0
Bonneau Ferry, SC	0	19,711	0	0	0
Subtotal, NERRS Acquisition/Construction	36,263	36,466	7,000	7,250	250
Marine Sanctuaries Construction/Acquisition					
Marine Sanctuaries Construction Base	4,324	4,928	5,000	7,250	2,250
Channel Islands National Marine Sanctuary	0	3,942	0	0	0
Florida Keys National Marine Sanctuary	-2,508	0	0	0	0
Humpback Whale National Marine Sanctuary	1,659	0	0	0	0
Thunder Bay NMS Exhibit	0	986	0	0	0
Monterey Bay National Marine Sanctuary	-323	0	0	0	0
Subtotal, Marine Sanctuaries Construction/Acquisition	3,152	9,856	5,000	7,250	2,250
Other NOS Construction/Acquisition					
Kachemack Bay Service Facility	-1	0	0	0	0
Bigelow Lab for Ocean Science (ME)	0	1,478	0	0	0
Fort Johnson Joint Lab (SCDNR) Modernization	1,979	0	0	0	0
NOAA ICOOS Observing Systems	0	8,871	0	0	0
Convert NOAA Weather Buoys with NDBC	0	7,886	0	0	0

Gulf Coast Lab at Cedar Point (USM)	0	1,478	0	0	0
Pier Romeo Hardening (Charlestown)	0	2,366	0	0	0
Marine Environmental Health Research Laboratory Enhancement & Equipment	5,937	6,899	0	0	0
National Aquarium Partnership	0	986	0	0	0
Conservation Institute	1,183	1,183	0	0	0
Univ of South Carolina Thomas Cooper Facility	0	3,942	0	0	0
Kasitsna Bay Laboratory	3,958	0	0	0	0
Coastal Service Center	1,624	3,942	0	0	0
Rescission	-1,625	0	0	0	0
Subtotal, NOS	103,028	127,050	12,000	14,500	2,500
<u>NMFS</u>					
Systems Acq. Computer Hardware & Software	3,455	3,450	0	0	0
Aquatic Resources	4,756	4,928	0	0	0
Southeastern Regional Office	1,584	0	0	0	0
Pacific Regional Center (Honolulu Fisheries Lab)	11,873	14,785	0	0	0
Pascagoula Laboratory	1,979	0	0	0	0
Barrow Arctic Research Center	0	5,914	0	0	0
Phase III - Galveston Laboratory Renovation - NMFS	1,979	1,971	2,000	2,000	0
Fleet Replacement	-2,426	0	0	0	0
Subtotal, NMFS	23,200	31,048	2,000	2,000	0
<u>OAR</u>					
Barrow Artic Research Ctr (Phase I)	8,410	0	0	0	0
Subtotal, OAR	8,410	0	0	0	0
<u>NWS</u>					
WFO Construction	13,459	12,814	13,000	13,630	630
WFO Maintenance	7,313	0	0	0	0
NOAA Center for Weather & Climate Prediction	10,291	2,268	2,300	8,500	6,200
Subtotal, NWS	31,063	15,082	15,300	22,130	6,830

<u>NESDIS</u>					
Satellite CDA Facility	0	2,218	2,250	2,250	0
Suitland Facility / NSOF	8,055	11,093	11,255	0	-11,255
Subtotal, NESDIS	8,055	13,311	13,505	2,250	-11,255
Total	173,756	186,491	42,805	40,880	-1,925

National Ocean Service
Activity: Construction/Acquisition

GOAL STATEMENT:

Improve capital assets used by the National Ocean Service in carrying out its mission.

BASE DESCRIPTION:

National Estuarine Research Reserve System Construction/Acquisition

The National Estuarine Research Reserve System (NERRS) is a Federal-state partnership designed to protect and understand valuable estuarine resources through research and education. Reserves are publicly owned lands and onsite facilities that provide opportunities for researchers as well as the public to better understand these estuarine areas. Supplementing or updating facilities at the 26 reserves will be carried on in conjunction with the development of system-wide construction plans. All construction activities are carried out based on the current needs for implementing core NERRS program and external opportunities for partnerships. When it is available, reserves will acquire additional, previously identified near-by critical habitat to increase protection and provide places for conducting long-term science, education, and demonstration programs. The facilities and land of the reserves are owned and managed by the states in this Federal-state partnership.

National Marine Sanctuary Program Construction/Acquisition

NOAA administers the National Marine Sanctuary System under authority of the National Marine Sanctuaries Act. There are 13 designated national marine sanctuaries: Monitor (NC), Channel Islands (CA), Gray's Reef (GA), Gulf of the Farallones (CA), Fagatele Bay (AS), Cordell Bank (CA), Florida Keys (FL), Flower Garden Banks (TX/LA), Gerry Studds Stellwagen Bank (MA), Monterey Bay (CA), Olympic Coast (WA), Thunder Bay (MI) and Hawaiian Islands Humpback Whale (HI). In addition, the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve is undergoing the sanctuary designation process. The sanctuaries range in size from one-quarter square mile in Fagatele Bay to over 5,300 square miles in Monterey Bay, which is one of the largest marine protected areas in the world. Together, these sanctuaries encompass over 18,000 square miles of waters and marine habitats.

The National Marine Sanctuary Program (NMSP) operates and coordinates the Nation's system of marine sanctuaries. Individual sanctuary offices are responsible for the daily operation of a wide variety of education, research, monitoring and management programs. The program has begun implementing a comprehensive facilities plan that prioritizes needs and opportunities at individual sites for constructing exhibits, collaborative education and visibility projects and operational needs. In order to help establish understanding and appreciation for sanctuary resources by the public, the program will begin to construct a network of exhibits, signage and kiosks. Whenever possible, sanctuaries will utilize existing aquaria, museums and other appropriate facilities to develop cooperative centers, where the public and environmental decision makers can gain direct, objective and focused information on conservation issues. These facilities serve as important windows into the resources of the sanctuaries. The goal of these exhibits is to share with the public these ocean

treasures. In addition to these outreach (i.e., exhibit) efforts, PAC funding supports operational facility requirements, including safety and ADA (Americans with Disabilities Act) upgrades, for NOAA-owned facilities.

PROPOSED LEGISLATION:

NOAA will continue to work with Congress to reauthorize National Marine Sanctuaries Act.

SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Line Item: Construction/Acquisition					
Armand Bayou and Genoa-Red Bluff, TX	-	591	-	-	-
Bainbridge Island, WA	-	493	-	-	-
Bayou Liberty Watershed Wetlands Conservation	-	887	-	-	-
Buffalo Bayou, TX	-	1,183	-	-	-
Coastal and Estuarine Land Conservation Program	50,558	-	-	-	-
Dos Pueblos, CA	-	2,957	-	-	-
East Sandusky Bay, OH	-	1,479	-	-	-
Flats East Riverfront Park, Ohio	-	1,479	-	-	-
Hawaii CELP	-	2,957	-	-	-
Laughlin Cove, WA	-	1,971	-	-	-
Manahawkin Marsh, NJ	-	789	-	-	-
Maumee River Basin, Ohio	-	1,479	-	-	-
Maury Island	-	1,479	-	-	-
MD Chesapeake Bay	-	5,668	-	-	-
Mentor Marsh Lake County, Ohio	-	986	-	-	-
Middletown, RI	-	739	-	-	-
Mount Agamenticus to the Sea, ME	-	986	-	-	-
North Hampstead	-	986	-	-	-
Nulands Neck, MA	-	296	-	-	-
Orange Beach (Robinson Island) AL	-	986	-	-	-
Port Aransas Nature Preserve Wetlands Protection Project	-	2,957	-	-	-
Potomac Watershed, VA	-	2,957	-	-	-
Seacoast, NH	-	2,464	-	-	-
Southhold, NY	-	1,479	-	-	-
Southwest Alaska Conservation	-	986	-	-	-
Tomer Canyon	-	492	-	-	-

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Wolf River Corridor	-	1,971	-	-	-
Subtotal: Coastal and Estuarine Land Conservation Program	50,558	41,697	-	-	-
National Estuarine Research Reserve Construction and Land Acquisition	36,263	6,899	7,000	7,250	250
Elkhorn Slough, CA	-	1,971	-	-	-
Great Bay Partnership	-	7,885	-	-	-
Bonneau Ferry, SC	-	19,711	-	-	-
Subtotal: NERRS Acquisition/Construction	36,263	36,466	7,000	7,250	250
Marine Sanctuaries Construction Base	4,324	4,928	5,000	7,250	2,250
Channel Islands National Marine Sanctuary	-	3,942	-	-	-
Florida Keys National Marine Sanctuary	(2,508)	-	-	-	-
Humpback Whale National Marine Sanctuary	1,659	-	-	-	-
Thunder Bay NMS Exhibit	-	986	-	-	-
Monterey Bay National Marine Sanctuary	(323)	-	-	-	-
Subtotal: Marine Sanctuaries Construction/Acquisition	3,152	9,856	5,000	7,250	2,250
Kachemack Bay Service Facility	(1)	-	-	-	-
Bigelow Lab for Ocean Science (ME)	-	1,478	-	-	-
Fort Johnson Joint Lab (SCDNR) Modernization	1,979	-	-	-	-
NOAA ICOOS Observing Systems	-	8,871	-	-	-
Convert NOAA Weather Buoys with NDBC	-	7,886	-	-	-
Gulf Coast Lab at Cedar Point (USM)	-	1,478	-	-	-
Pier Romeo Hardening (Charlestown)	-	2,366	-	-	-
Marine Environmental Health Research Laboratory Enhancement & Equipment	5,937	6,899	-	-	-
National Aquarium Partnership	-	986	-	-	-
Conservation Institute	1,183	1,183	-	-	-

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Univ of South Carolina Thomas Cooper Facility	-	3,942	-	-	-
Kasitsna Bay Laboratory	3,958	-	-	-	-
Coastal Service Center	1,624	3,942	-	-	-
Rescission	(1,625)	-	-	-	-
Subtotal: Other NOS Construction/Acquisition	13,055	39,031	-	-	-
TOTAL	103,028	127,050	12,000	14,500	2,500
FTE	-	-	-	-	-

PROGRAM CHANGES FOR FY 2006:

National Estuarine Research Reserve System (0 FTE and +\$250,000): NOAA requests an increase of 0 FTE and \$250,000, for a total of \$7,250,000, for discretionary National Estuarine Research Reserve System (NERRS) construction and land acquisition projects. This increase will maintain the level of funding needed to support this Federal-state partnership designed to protect and understand valuable estuarine resources through research and education. The facilities and land of the reserves are owned and managed by the states in this Federal-state partnership. Federal funds are matched 50:50 for land acquisition and 70:30 for construction projects (Federal:state funds). The land acquisition projects will provide greater protection to reserve resources. The construction projects include interpretive centers, reserve research facilities, educational exhibits, and boardwalks or trails. Having adequate facilities makes a considerable difference in the quality of research, education, outreach and resource protection programs that can be conducted at the reserves.

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate*
National Estuarine Research Reserve System								
Change from FY 2006 Base		250	250	250	250	250		
Total Request	N/A	7,250	7,250	7,250	7,250	7,250	N/A	N/A

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

**This is a recurring program

National Marine Sanctuary Program (0 FTE and +\$2,250,000): NOAA requests an increase of 0 FTE and \$2,250,000, for a total of \$7,250,000, for discretionary National Marine Sanctuary (NMS) construction projects in FY 2006. The Sanctuary program will continue efforts on many of the projects begun in prior years, and address operational facility requirements and small outreach efforts, i.e., exhibits. The NMS program will continue to implement a comprehensive facilities plan that prioritizes needs and opportunities at individual sites for constructing sanctuary visitor centers, collaborative education projects and operational needs. These facilities serve as important windows into the resources of the sanctuaries, since most of these special marine environments are offshore and not easily accessible by many visitors. Whenever possible, sanctuaries utilize existing aquaria, museums, and other appropriate facilities to develop cooperative centers, where the public and environmental decision makers can gain direct, objective and focused information on major conservation issues.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate*
National Marine Sanctuary Acquisition/Construction								
Change from FY 2006 Base		2,250	2,250	2,250	2,250	2,250		
Total Request	N/A	7,250	7,250	7,250	7,250	7,250	NA/	N/A

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

**This is a recurring program.

TERMINATIONS FOR FY 2006:

The following programs been terminated in FY 2006: Coastal and Estuarine Land Conservation Program (\$41,697,000); Elkhorn Slough, CA (\$1,971,000); Bonneau Ferry, SC (\$19,711,000); Great Bay Partnership (\$7,885,000); Channel Islands National Marine Sanctuary (\$3,942,000); Thunder Bay NMS Exhibit (\$986,000); Bigelow Lab for Ocean Science-ME (\$1,478,000); NOAA ICOSS Observing Systems (\$8,871,000); Convert NOAA Weather Buoys with NDBC (\$7,886,000); Gulf Coast Lab at Cedar Point-USM (\$1,478,000); Pier Romeo Hardening-Charleston (\$2,366,000); Marine Environmental Health Research Lab Enhance/Equip (\$6,899,000); National Aquarium Partnership (\$986,000); Conservation Institute (\$1,183,000); Univ of South Carolina Thomas Cooper Facility (\$3,942,000); Coastal Services Center (\$3,942,000).

National Marine Fisheries Service
Activity: Systems Acquisition / Construction

GOAL STATEMENT:

Provide the non-recurring costs of acquiring and/or improving capital assets used by the National Marine Fisheries Service in carrying out its mission.

BASE DESCRIPTION:

Phase III – Galveston Laboratory Renovation: The Galveston Phase III Renovation project supports the ongoing last phase to renovate and restore the NOAA Fisheries Galveston Laboratory. These renovations are necessary due to building deterioration that results from long and hard usage. These buildings need to be rehabilitated and updated to meet current code requirements and eliminate safety and system failings. Working space for fisheries research will be restored for NOAA Fisheries scientists, contractors and partners. Five buildings are slated for renovation in Phase III - buildings 301, 303, 305, 306 and 307 and will accommodate NOAA Fisheries functions for the Library, Fishery Management Office, Permit Review and Fishery Statistics Office, Conference Center, and Marine Mammal and Necropsy laboratory. To date, this project has received \$3,950,000 of the \$5,950,000 total needed to complete the project. The remainder is coming in FY 2006.

Base activities support the objective, “Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs” under the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth's resources to promote environmental needs.”

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
Phase III – Galveston Laboratory Renovation								
Total Request	3,950	2,000	0	0	0	0	0	5,950

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

PROPOSED LEGISLATION:

None.

SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Line Item: Systems Acquisition / Construction					
Systems Acq. Computer Hardware & Software	3,455	3,450	-	-	-
Aquatic Resources	4,756	4,928	-	-	-
Southeastern Regional Office	1,584	-	-	-	-
Pacific Regional Center (Honolulu Fisheries Lab)	11,873	14,785	-	-	-
Pascagoula Laboratory	1,979	-	-	-	-
Barrow Arctic Research Center	-	5,914	-	-	-
Phase III - Galveston Laboratory Renovation - NMFS	1,979	1,971	2,000	2,000	-
Fleet Replacement	(2,426)	-	-	-	-
TOTAL	23,200	31,048	2,000	2,000	-
FTE	9	-	-	-	-

PROGRAM CHANGES FOR FY 2006:

No program changes are requested in FY 2006 for NOAA Fisheries Construction.

Office of Oceanic and Atmospheric Research
Activity: Construction

GOAL STATEMENT:

To ensure that NOAA Research (OAR) has the state-of-the-art facilities needed to enable its laboratories and programs to fulfill their mission activities for NOAA and the Nation.

BASE DESCRIPTION:

The most recent construction project for NOAA Research has been a partnership with the National Weather Service (NWS) and with the University of Oklahoma (OU) to construct a new National Weather Center on the South Base of the OU campus to integrate components of the OU School of Meteorology with components of NOAA's NWS and OAR. NOAA's share of the construction costs were appropriated over the fiscal years 2001-2003, which funds are currently being spend on this jointly constructed building between NOAA and the University of Oklahoma. The new building will provide space for forecast and warning operations, computer room, generator and Uninterruptible Power Supply rooms, technicians' shops, a mobile research lab, library, warehouse, and storage. This joint project will bring together critical weather warning and forecast operations and research components with the University's academic expertise in meteorology.

In addition, funds have been appropriated in fiscal years 2003-2004 for the planning and phase-I construction of a Barrow (Alaska) Arctic Research Center (BARC). The BARC, also called the Barrow Global Climate Change Research Facility (BGCCRF) will be modern research facility designed to meet the needs of the global Arctic research community and of the local and regional Inupiat Eskimo population. It is designed to support interdisciplinary research and to be flexible and adaptable so that it can evolve along with the research needs.

PROPOSED LEGISLATION:

None.

SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Line Item: Construction					
Barrow Artic Research Ctr (Phase I)	8,410	-	-	-	-
TOTAL	8,410	-	-	-	-
FTE	-	-	-	-	-

PROGRAM CHANGES FOR FY 2006:**None.**

**National Weather Service
Activity: Construction**

GOAL STATEMENT:

See the Overview for the National Weather Service Operations, Research, and Facilities for a discussion of our goals.

BASE DESCRIPTION:

Weather Forecast Office (WFO) Construction: Part of the National Weather Service (NWS) modernization and associated restructuring, the WFO Construction program was started in the late 1980s to meet NWS Weather Forecast Office (WFO) facility requirements supporting the provision of public weather services and the nationwide NEXRAD radar network. The original scope of the project, completed in FY 1999, included the construction or lease of 117 WFOs (13 of which were co-located with River Forecast Centers) and cost approximately \$250M. Since this time, the NWS has added five WFOs to address service coverage requirements in Guam, Northern Indiana, Caribou, ME, Huntsville, AL and Key West, FL. Other required construction elements currently ongoing include the upgrade and modernization of Alaska and Pacific Region Weather Service Offices, Tsunami Warning Centers, and associated employee housing units, upgrades of Heating, Ventilation, and Air Conditioning (HVAC) systems at approximately 60 WFOs, uninterruptible power supply (UPS) replacements, and mitigation of all building and fire code violations. This construction effort is essential to bring the NWS into full compliance with federal law and municipal codes.

FY 2004 Accomplishments

WFOs:

- Key West - awarded construction project
- Upgraded Heating, Ventilation and Air Conditioning (HVAC) systems at 10 WFOs

Alaska Region:

- St. Paul Weather Service Office (WSO) - awarded construction contracts
- McGrath Housing - site surveys
- Nome WSO - transferred funds to the Federal Aviation Administration (FAA) for joint project
- Annette WSO - site surveys
- Cold Bay WSO - transferred funds to the Federal Aviation Administration (FAA) for joint project

FY 2005 Plans

Pacific Region:

- Majuro Upper Air Building – Award design and construction contracts
- Hilo WSO – complete construction

WFOs:

- Key West - post award modifications/government furnished equipment (GFE) acquisition
- Safety/Code - safety compliance and code upgrades
- UPS - upgrade/replace systems

Alaska Region:

- St. Paul Housing Construction – award contract
- Nome WSO - modify prototype design to fit new site
- Annette WSO - A/E design services
- Cold Bay WSO - modify prototype design to fit new site

FY 2006 Plans

Pacific Region:

- PTWC – design and construction for rehabilitation/renovation

WFOs:

- Key West - post award modifications/government furnished equipment (GFE) acquisition
- Safety/Code - safety compliance and code upgrades
- Upgrade Heating, Ventilation and Air Conditioning (HVAC) systems at 10 WFOs
- UPS - upgrade/replace systems

Alaska Region:

- St. Paul Housing - post award modifications/government furnished equipment (GFE) acquisition
- McGrath Housing – acquire land and award design contract
- Annette WSO - award construction contract
- Cold Bay WSO – award construction contract in collaboration with FAA
- Barrow WSO – begin architectural/engineering studies

	FY05			FY06 Activities
WFO Construction	Complete	Ongoing	Future	
WFOs	122			
Key West, FL	X			Complete Move/Furnishings
Retrofits				
Safety code	X	X	X	
Expansions	9			
HVAC corrections	X	X	X	
UPS corrections	X	X	X	
Alaska Region				
Yakutat WSO				
St. Paul				
WSO	X			
Housing		X		Complete
McGrath				
WSO	X			Post Award Mods/GFE Acquisition
Housing		X	X	Architecture/Engineering design
Nome				
WSO				Award construction through FAA
Housing			X	
Annette WSO		X	X	Award Construction Contract
Cold Bay				
WSO			X	Award construction through FAA
Housing			X	
Barrow WSO			X	
Barrow OAR Housing				

	FY05			FY06 Activities
WFO Construction	Complete	Ongoing	Future	
ATWC	X			
Kodiak WSO				
Kotzebue				
WSO			X	
Housing		X		Housing Units being leased
Bethel WSO				Site Surveys
King Salmon WSO				
Valdez WSO				
Pacific Region				
PTWC			X	Site Renovations
Guam	X			
Majuro				
Samoa	X			
Lihue				
Koror				
Yap				
Chuuk				
Pohnpei				
Hilo	X			

NOAA Center for Weather and Climate Prediction (NCWCP):

This new facility will replace the current World Weather Building with a new state-of-the-art facility to meet the operational requirements of the National Centers for Environmental Prediction (NCEP), the National Environmental Satellite, Data, and Information Service (NESDIS) Office of Research and Applications and Satellite Services Division, and the Office of Oceanic and Atmospheric Research (OAR) Air Resources Laboratory.

FY 2004 funding for the NCWCP enabled NOAA to support the General Services Administration to award a build-to-suit lease for the NOAA NCWCP during FY 2004 and includes necessary above standard" construction costs. The FY 2004 lease award for NCWCP will ensure occupancy of the new facility by 2008 when the current World Weather Building lease expires.

In FY 2005 NWS \$2.3M funding will support:

- \$1.0M in Tenant Improvements (TI) payment to GSA including:
General TI: framing and build out; painting; carpeting; lighting; molding and trim; window treatments
Custom TI: enhanced lighting; additional electrical outlets; additional telephone jacks; special ADP space
- \$1.3M for NOAA/GSA project management:
Ensure design requirements are met

The current facility infrastructure is inadequate for supporting NOAA's technological requirements, as is detailed in the program change section of this document.

Implementation:

Department of Commerce senior management and the State of Maryland have agreed on a shared vision to build a Center of Excellence for Environmental Research, Education, Applications and Operations in close proximity to an academic institution. The NOAA/GSA facility acquisition process is underway: The lease prospectus has been approved by Congress and the site acquisition process has begun.

Outcomes:

The NWS has demonstrated the positive results of co-locating its facilities with academic institutions or laboratories to accelerate transitioning research into operations and to improve operational performance. Whenever possible, the NWS Modernization co-located NWS forecast offices with research laboratories or universities (22 forecast offices collocated with laboratories or universities). Synergistic interactions between NOAA and the academic community will lead to improved model performance and produce the following outcomes:

- Improved model forecasts and all aspects of the NWS forecast goals for climate and weather
- Accelerated use of global satellite data through state-of-the-art data assimilation systems
- Accelerated infusion of new science into operations. Experience with synergistic relationships shows a reduction from 7-10 years to 1-3 years (NWS WFOs co-located with academic institutions have shown accelerated performance improvement).
- Enhanced ability to recruit and retain key personnel, with the average number of applicants for key leadership and scientific positions at NCEP increasing from 2 to 3 to greater than 10.

NOAA demonstrated improvement of weather forecast performance scores following the co-location of NWS Forecast Offices with research laboratories and universities. By following this model, NOAA intends to accelerate the transfer of weather and climate research into operations, improve forecast

models, and provide a focus for improving environmental satellite data assimilation. Further, co-locating the new facility in a scientific, academic setting will increase the recruitment and retention of top scientists needed to advance NOAA's Programs.

Site Acquisition	Projected Completion Date
Environmental Assessment	January 2004
Site Due Diligence	February 2004
Site Option Negotiation	March 2004
Site Option Executed	August 2004
Lease Acquisition	
Procurement	March 2005
Design	March 2005
Construction	December 2005
Occupancy	
Relocation	August 2007
Final Occupancy	February 2008
Lease for World Weather Building Expires	April 2008

Base activities support both objectives, under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

PROPOSED LEGISLATION:

None.

SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Line Item: Construction					
WFO Construction	13,459	12,814	13,000	13,630	630
WFO Maintenance	7,313	-	-	-	-
NOAA Center for Weather & Climate Prediction	10,291	2,268	2,300	8,500	6,200
TOTAL	31,063	15,082	15,300	22,130	6,830
FTE	1	-	-	-	-

PROGRAM CHANGES FOR FY 2006:

NOAA Center for Weather and Climate Prediction (NCWCP) (+0 FTE and +\$6,200,000): NOAA requests an increase of 0 FTE and \$6,200,000, for a total of \$8,500,000 to finalize the design and implementation of the construction of the NOAA Center for Weather and Climate Prediction (NCWCP). The funding will also be used to initiate critical long lead procurements for data and communications infrastructure that will be installed in the building during construction and for furnishings, fixtures and equipment that must be procured prior to the completion of construction. Lastly, the funding will be used for project management tasks supporting technical oversight of the design and construction process and the detailed planning necessary to execute the relocation of critical 24x7 operational systems without interruption of service. The funding is critical to ensure project continuity for work initiated in FY 2004.

Background:

The FY 2004 NOAA appropriation includes \$10.3M for the new NCWCP. This new facility will replace the current World Weather Building with a new state-of-the-art facility to meet the operational requirements of the National Centers for Environmental Prediction (NCEP), the National Environmental Satellite, Data, and Information Service (NESDIS) Office of Research and Applications and Satellite Services Division, and the Office of Oceanic and Atmospheric Research (OAR) Air Resources Laboratory. Funding for the NCWCP enables NOAA to support the General Services Administration to award an operating lease for the NOAA NCWCP during FY 2004 and includes necessary “above standard” construction costs. The December 2004 lease award will ensure occupancy of the new facility by 2008 when the current World Weather Building lease expires. In FY 2005, \$2.3M will be used to continue tenant improvements for above standard construction requirements and project management.

The current facility infrastructure is inadequate for supporting NOAA’s technological requirements. The infrastructure is strained and is impacting NOAA’s ability to efficiently and reliably maintain sensitive 24-hour, 7-day per week, mission critical operations in a secure environment. The short-term steps to meet program growth have also perpetuated deficient working conditions for employees. The NCWCP Project will provide an appropriate, state-

of-the-art facility to address each of these issues. The current facility contains no raised flooring required for computer space, has single pane windows (difficult to heat and cool), has obsolete and under-performing air handling units, and is located in a high crime area. The World Weather Building, constructed in 1973, is crowded and does not meet the NWS and NESDIS technology support requirements. These current facility deficiencies add risk to continuity of operations and provide an inadequate work environment. Because of these issues, it has become difficult to recruit and retain quality personnel at NCEP and NESDIS.

Implementation:

Department of Commerce senior management and the State of Maryland have agreed on a shared vision to build a Center of Excellence for Environmental Research, Education, Applications and Operations in close proximity to an academic institution. NOAA is executing the project in partnership with the General Services Administration. The lease prospectus has been approved, a site for the construction of the new facility has been identified, and the acquisition of the facility is in progress.

In FY 2006, the NCWCP design will be completed and actual construction of the facility will begin. Simultaneously NOAA will implement procurements to contract with other Government contractors who will install a complex data and communications cabling plant required to support large and critical data flows in a 24x7 environment. In order to have the plant operational upon completion of the building, the cabling plant contractor will work on site with the general contractor to install the cabling plant during the construction phase. The high density cabling systems will be procured in FY 2006 to ensure that the systems are available for installation during the time the raised flooring is installed. Coordination between the raised flooring and cabling system installers requires exacting coordination due to the close tolerance required by both trades. The \$1.0M of above standard costs in FY 2006 is the last transfer of funds to GSA for the design, construction, and management and inspection services related to these specialized space requirements.

Long lead systems furniture orders will be placed in FY2006 to initiate the delivery of furniture needed to begin the installation in the new facility immediately upon completion. The furniture must be installed to perform final fire marshal inspections and to obtain local jurisdiction occupancy permits. All outfitting requirements for FY 2006 are specifically tied to the building infrastructure, such as system backup, security systems, and telecommunications, and therefore must be integrated into the building design and construction work. The FY 2006 effort will also involve the initial transition of the mission systems to the NCWCP. To support the transition of 24x7 communications, orders will be placed to relocate high speed specialized data circuits between the new facility and other organization obtaining critical weather data from NWS. This will also involve implementing temporary communications bridges between the existing and new facility to facilitate testing and validation of the new installations in the NCWCP prior to closing down operational system in the current facility. The FY2006 funding will be used to complete the detailed planning of layouts for mission systems, communications room, and technical spaces necessary to support the dissemination of information during major weather events. In FY 2006 Government furnished equipment is estimated to cost \$4.7M and the transition and move to cost \$1.4M.

The relocation planning will be fully coordinated to reduce the cost impact to the NCWCP project by implementing information technology infrastructure replacement in concert with planned NCEP cyclic replacement schedule. Project management, including a project manager, space planner and project engineer are estimated to cost \$1.4M in FY 2006 (see cost table below for details).

Outcomes:

The NWS has demonstrated the positive results of co-locating its facilities with academic institutions or laboratories to accelerate research into operations and improve performance. Whenever possible, the NWS Modernization included the co-location of NWS forecast offices with Research Laboratories/Universities (22 forecast offices collocated with laboratories, university campuses). Synergistic interactions between NOAA and the academic community will lead to improved model performance and produce the following outcomes:

- Accelerated use of global satellite data through state-of-the-art data assimilation systems.
- Improved model forecasts will improve all aspects of the NWS forecast goals for climate and weather.
- Decreased the time needed to infuse new science into operations.
- Experience with synergistic relationships shows a reduction in the time needed to infuse new science into operations from 7-10 years to 1-3 years. NWS WFOs co-located with academic institutions have shown accelerated performance improvement.
- The new facility will significantly enhance NOAA's ability to recruit and retain key personnel by increasing average number of applicants for key leadership and scientific positions at NCEP from 2 to 3 to greater than 10.

NOAA demonstrated improvement of weather forecast performance scores following the co-location of NWS Forecast Offices with research laboratories and universities. By following this model, NOAA intends to accelerate the transfer of weather and climate research into operations, improve forecast models, and provide a focus for improving environmental satellite data assimilation. Further, co-locating the new facility in a scientific, academic setting will increase the recruitment and retention of top scientists needed to advance NOAA's programs.

Schedule

Site Acquisition	Projected Completion Date
Environmental Assessment	January 2004
Site Due Diligence	February 2004
Site Option Negotiation	March 2004
Site Option Executed	August 2004
Lease Acquisition	
Procurement	March 2005
Design	March 2005
Construction	December 2005
Occupancy	

Relocation	August 2007
Final Occupancy	February 2008
Lease for World Weather Building Expires	April 2008

Performance Goals and Measurement Data:

This increase will support both objectives under the DOC Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs", as well as NOAA's Mission Support strategic goal.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
NOAA Center for Weather & Climate Prediction	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
Change from FY 2006 Base		8,500	20,600	6,400	4,400	4,400		
Total Request	12,558	10,500	22,900	8,700	6,700	6,700		68,058

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Weather Forecast Office (WFO) Construction (+0FTE and +\$630,000): NOAA requests an increase of 0 FTE and \$630,000, for a total of \$13,630,000 to restore funds requested in FY 2005.

Performance Goals and Measurement Data:

This increase will support both objectives under the DOC Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs", as well as NOAA's Mission Support strategic goal.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
WFO Construction								
Change from FY 2006 Base		630	630	630	630	630		
Total Request	63,638	13,630	13,630	13,630	13,630	13,630	13,630	145,418

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

National Environmental Satellite, Data, and Information Service
Activity: Construction

GOAL STATEMENT:

The Nation requires sound and secure facilities and infrastructure to house the equipment and workforce needed to ensure uninterrupted acquisition of data from its environmental satellites.

BASE DESCRIPTION:

Satellite Command and Data Acquisition (CDA) Infrastructure – Protecting Critical Operational Capabilities: NOAA's CDA Infrastructure program at the Wallops and Fairbanks CDAs is to ensure continuation of the current 99.9 percent data availability for NOAA environmental satellite systems. The Wallops and Fairbanks facilities and infrastructure are over 40 years old. Major systems at both facilities are operating well past their design lives and require maintenance, repair, and in many cases, replacement. The Fairbanks facility is located in a seismic zone and operates in severe Sub-Arctic conditions, with temperatures routinely reaching minus 60 degrees Fahrenheit during the winter months. The Wallops facility, on the Atlantic coast, is subject to a corrosive salt air environment and lies in the path of hurricanes that hit the US East Coast. Both stations have been determined to be critical national infrastructure elements by Presidential Decision Directive.

NOAA has partnered with the U.S. Army Corps of Engineers and developed facilities master plans for Wallops and Fairbanks facilities. NOAA will incrementally implement the facilities master plans to support a phased, multi-year program to comprehensively renovate and modernize the facilities, infrastructure, and equipment to minimize or eliminate safety, hazardous materials, waste water treatment, and other deficiencies at the facilities that could lead to outages and service disruptions caused by failure of supporting infrastructure at the stations.

Base activities support both objectives under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

OUTYEAR FUNDING ESTIMATES								
(BA in Thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
Continuity of Critical Facilities								
Change from FY 2006 Base		0	0	0	0	0		
Total Request	2,218	2,250	2,250	2,250	2,250	2,250	22,500	35,968

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

PROPOSED LEGISLATION:

None.

SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Line Item: Construction					
Satellite CDA Facility	-	2,218	2,250	2,250	-
Suitland Facility / NSOF	8,055	11,093	11,255	-	(11,255)
TOTAL	8,055	13,311	13,505	2,250	(11,255)
FTE	-	-	-	-	-

PROGRAM CHANGES FOR FY 2006:

The following programs, or portions thereof, have been terminated in FY 2006: NOAA Satellite Operations Facility (NSOF) (-\$11,255,000).

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
PROCUREMENT, ACQUISITION AND CONSTRUCTION
FLEET REPLACEMENT FY 2006 OVERVIEW

SUMMARIZED FINANCIAL DATA

(\$ in thousands)

Procurement, Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Program Support					
ADVENTUROUS Refurbishment	-128	0	0	0	0
FAIRWEATHER Refurbishment	-269	0	0	0	0
Small Waterplane Area Twin Hull (SWATH) Vessel	-5,577	9,167	0	0	0
Upgrades - NANCY FOSTER/OSCAR DYSON/FAIRWEATHER/HI 'IALAKAI	0	1,774	1,800	3,230	1,430
GORDON GUNTHER Upgrade	-29	0	0	0	0
Fisheries Research Vessel Replacement #1	-4,065	2,366	0	0	0
Fisheries Research Vessel Replacement #3	15,121	33,513	33,513	0	-33,513
Fisheries Research Vessel Replacement #4	0	5,519	0	32,500	32,500
VINDICATOR/HI 'IALAKAI Fit Out	2,473	0	0	0	0
Ship Acquisition, Conversion & Maintenance	4,058	0	0	0	0
Sonar for Long Range Fisheries Research	5,640	5,618	0	0	0
Subtotal, Program Support	17,224	57,957	35,313	35,730	417
Total	17,224	57,957	35,313	35,730	417

Program Support
Activity: Program Support/OMAO - Fleet Replacement

GOAL STATEMENT:

Modernize NOAA's ship support for oceanographic research, fisheries research, hydrographic surveys, bathymetric mapping, and environmental assessment to allow critical data collection requirements to be met effectively.

BASE DESCRIPTION:

The objectives of this subactivity are to:

- Capture the non-recurring costs of acquiring or improving vessels used by NOAA in carrying out its varied missions.
- Allow NOAA to realize procurement efficiencies, management accountability, and to reflect the full cost of acquisition and/or improvement and upgrade of ships, ship systems, subsystems, and equipment.

Base activities support the objective, "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

PROPOSED LEGISLATION:

None.

SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Line Item: Program Support/OMAO - Fleet Replacement					
ADVENTUROUS Refurbishment	(128)	-	-	-	-
FAIRWEATHER Refurbishment	(269)	-	-	-	-
Small Waterplane Area Twin Hull (SWATH) Vessel	(5,577)	9,167	-	-	-
Upgrades - NANCY FOSTER/OSCAR DYSON/FAIRWEATHER/HI 'IALAKAI	-	1,774	1,800	3,230	1,430
GORDON GUNTHER Upgrade	(29)	-	-	-	-
Fisheries Research Vessel Replacement #1	(4,065)	2,366	-	-	-
Fisheries Research Vessel Replacement #3	15,121	33,513	33,513	-	(33,513)
Fisheries Research Vessel Replacement #4	-	5,519	-	32,500	32,500
VINDICATOR/HI 'IALAKAI Fit Out	2,473	-	-	-	-
Ship Acquisition, Conversion & Maintenance	4,058	-	-	-	-
Sonar for Long Range Fisheries Research	5,640	5,618	-	-	-
TOTAL	17,224	57,957	35,313	35,730	417
FTE	6	5	5	5	-

PROGRAM CHANGES FOR FY 2006:

NOAA requests a net increase in this subactivity of 0 FTE and \$417,000. This request will enable NOAA to construct the fourth fisheries survey vessel under an existing contract, as well as to continue upgrading NANCY FOSTER and begin upgrading McARTHUR II and OSCAR ELTON SETTE.

McARTHUR II/NANCY FOSTER/OSCAR ELTON SETTE Upgrades (0 FTE and +\$1,430,000): NOAA requests an increase of 0 FTE and \$1,430,000, for a total of \$3,230,000 to continue ship upgrading begun in FY 2005 on NANCY FOSTER and initiate upgrades to McARTHUR II and OSCAR ELTON SETTE. Upgrades to the three ships will enable them to better meet data collection requirements for NOAA's Strategic Plan Goal 1, Ecosystem-based management.

All three vessels were originally constructed by the U.S. Navy for a different mission. As surplus transfers to NOAA, the vessels need mission upgrades in order to support NOAA's Ecosystem goals effectively. The ships are currently operating but with limited capabilities that do not meet all mission requirements.

In FY 2003 NOAA received an excess T-AGOS vessel via interagency transfer from the Navy to replace the 37-year old McARTHUR. Funds requested in FY 2006 will continue the upgrading process that began in FY 2004. FY 2006 upgrades will include completion of the mission spaces, including labs and aft deck initiated in FY 2005, plus a mission boat and a Miranda davit to lower the boat quickly into the water. McARTHUR II is home ported in Seattle, Washington, and supports NOS and NMFS missions along the West Coast.

Upgrades to McARTHUR II's laboratory spaces will support the needs of embarked scientists by providing work areas with appropriate laboratory facilities to conduct their research efficiently and to store and assemble mission equipment. Current laboratory space is not sufficient to meet working requirements because it was not originally designed to conduct science. Failure to install a mission boat would prevent scientists from disembarking McARTHUR II in order to conduct research in shallow waters.

Upgrades to NANCY FOSTER requested for FY 2006 will include a winch and wire, an additional small boat, and the second phase of outfitting the labs. NANCY FOSTER is home ported in Charleston, South Carolina, and supports NOS, OAR and NMFS missions along the Atlantic coast and Gulf of Mexico.

Some project time on NANCY FOSTER already has been lost because the vessel lacks necessary capabilities. For example, NOAA's Ocean Exploration program could not complete a project because the ship lacked an A-frame and winch to deploy a Remotely Operated Vehicle (ROV) over the side of the ship. An oceanographic winch is standard mission equipment on any NOAA vessel and is a requirement for research at sea. Winches provide the capability to deploy and retrieve oceanographic packages over the side of the vessel to collect samples, transmit data back to the ship, take water and bottom samples, conduct trawls and camera tows, deploy ROVs, deploy buoys, and collect many other types of measurements. Without a fully functioning oceanographic winch, oceanographic research is significantly compromised and in almost every case would prevent the scientific mission from being accomplished. Lack of a mission boat prevents scientists from disembarking the FOSTER in order to conduct research in the shallow waters of marine sanctuaries and estuaries. If FOSTER's laboratory upgrades are not completed, the scope and type of science capability that can be conducted aboard the vessel is limited and the quality of data and research is compromised.

Upgrades to OSCAR ELTON SETTE are necessary to meet requirements by NMFS, NOS, and OAR to collect data for fisheries management and marine mammal protection, and data on coral reefs, marine sanctuaries, National Estuarine Research Reserves (NERRS), ocean exploration, and oceanography. OSCAR ELTON SETTE was converted in FY 2001 and FY 2002 to replace TOWNSEND CROMWELL. Funds requested in FY 2006 will be used to upgrade the wet lab design, install a workboat and a Miranda davit, acquire engineering spares, update the ventilation systems, and install instrumentation. OSCAR ELTON SETTE is home ported in Honolulu, Hawaii, and operates throughout the central and western Pacific.

Similar to the other ships, OSCAR ELTON SETTE's lack of adequate laboratory space hampers fisheries research and assessments. With upgraded lab designs, more scientists could embark on the same trip and could conduct additional biological, chemical, and other mission research projects. With no Miranda davit, crew members must guide a small boat into the water using a crane and then climb down into the boat, greatly increasing the risk of injury. Since much of the SETTE's work occurs in tropical areas, it is imperative that the ventilation ducting system be replaced to prevent condensation in the equipment, including new multibeam equipment which includes racks of sophisticated electronics. Lack of engineering spare parts would prevent the ship from making simple repairs at sea and would require the ship to return prematurely to port for repairs and replacement of parts.

Performance Goals and Measurement Data

This increase will enable the three ships to better meet data collection requirements. The upgrades will support the following Ecosystem measures:

Performance Goal: Ecosystem
Number of major stocks with an "unknown" stock status.
Number of protected species designated as threatened, endangered or depleted with stable or increasing population levels.
Number of protected species with known impacts from fisheries for which mortalities have been reduced to acceptable levels.
Number of protected species designated as endangered, threatened, depleted or strategic stocks for which recovery, conservation, and /or take reduction plans are in place.
Number of stocks of protected species with adequate population assessments.
Number of habitat acres Restored

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
T-AGOS, MCCarthur II/NANCY FOSTER Upgrades								
Change from FY 2006 Base		1,430	(3,230)	(3,230)	(3,230)	(3,230)		
Total Request	1,774	3,230	0	0	0	0	0	

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Fisheries Survey Vessel (FSV-#4) (0 FTE and +\$32,500,000): NMAO requests 0 FTE and \$32,500,000 for the fourth fisheries survey vessel (FSV), which is required to collect data to manage fish stocks and protect marine mammals. Funds received in the FY 2005 Omnibus appropriation will be used to purchase long lead-time materials. Additional funding will be required in the outyears to complete ship construction and prepare the ship for operations in support of NOAA's Strategic Plan Goal 1, Ecosystem-based management. The requested funding will enable NOAA to exercise an option for the fourth ship on an existing four-ship contract, thereby retaining current pricing.

FSV4 would deploy state-of-the-art acoustic technologies, combined with a very quiet radiated noise signature, to enhance the effectiveness and efficiency of at-sea resource surveys. These capabilities would enable FSV4 to monitor up to nine times more volume of water for the same time and distance traveled by current ships. Enhanced data streams would allow assessment scientists to improve survey designs and ground-truth acoustic surveys using modern trawl gear. FSV4 would support NMFS' new FETCH Autonomous Underwater Vehicle to extend survey sampling beyond the trackline of the ship.

FSV4 is scheduled to support both the Northwest and Southwest Fisheries Science Centers (NWFSC and SWFSC). The NWFSC is responsible for managing Pacific whiting, which is the largest West Coast fishery and generates nearly \$30M annually. More frequent surveys of whiting are required to reduce the uncertainty in stock condition by accurately tracking natural fluctuations in stock abundance and optimum yield. FSV4, with the additional capabilities described above, is required to increase the frequency of surveys. The MILLER FREEMAN, which currently collects stock assessment data on whiting, has over 35 years of service. A major breakdown on MILLER FREEMAN, an increasing risk with each passing year, would further reduce the present inadequate frequency of surveys.

FSV4 is also needed for ocean habitat investigations on ESA-listed Pacific salmon, southern resident killer whales, and highly migratory species (sharks, tunas, billfish). Little is known about the ocean phase of West Coast salmon, and failure to recover ESA-listed stocks will greatly impact not only bycatch limits on commercial fisheries and sport fisheries seasons, but also the shore-side economy up to the headwaters of coastal rivers and streams.

A GAO review of NMFS' West Coast Groundfish Program (June 2004) validated the highest priority for FSV4 to expand data collection for more comprehensive assessments of over 82 groundfish species. Only 26 have been quantitatively assessed, and the other 60 species are of unknown stock status. Of the assessed stocks, 8 are overfished and many are subject to overfishing. The GAO report found 5 major stock assessments to be questionable due in part to the lack of NOAA-collected data of sufficient scope and accuracy. Without improved and additional new stock assessments, the groundfish fisheries must be managed more conservatively with the associated reduction in economic and social benefits. With the new FSV technology, NOAA will support the Groundfish Fishery Management Plan to survey 30 species of the shelf and slope rockfish that have not been assessed. The advanced observation methods, including mid-water and bottom-typing acoustics, on FSV4 will provide new data streams for first-time assessments of these stocks. FSV4 is a critical component of NOAA Fisheries expand stock assessment west coast initiative to collaborate with partners in academia, foundations and state fisheries agencies to develop an integrated Pacific Coastal Observing System.

The Southwest Fisheries Science Center (SWFSC) has an urgent need for a pelagic longline survey on highly migratory species including mako sharks, 2 species of thresher sharks and striped marlin (never assessed), and bigeye tuna (overfished and only partially assessed). FSV4 will extend survey effort into the Central and Western Pacific Ocean for the 34 lesser-known stocks of marine mammals. These represent small populations susceptible to capture in commercial fisheries. Without adequate marine mammal assessments, the near-shore gillnet fishery (150 vessels), pelagic gillnet swordfish fishery (100 vessels), and the longline swordfish fishery (175 vessels) can be prematurely shut down in response to highly variable marine mammal bycatch estimates.

Performance Goals and Measurement Data

The FSV-#4 is a Mission Support activity and supports NOAA's other four strategic plan goals. This acquisition will enable NOAA to set accurate fishing quotas for waters off the West Coast and will support NOAA in meeting the following performance metrics:

Stock Assessment Improvement Plan (SAIP) performance measure: Monitoring and assessment of fish stocks is sufficiently timely, accurate, and comprehensive to implement ecosystem-based fishery management decisions.

SAIP performance target: All fish stocks identified as major are monitored and assessed to a level that meets the implementation needs of fishery management plans and contributes to overall ecosystem assessment.

Performance Goal: Ecosystem	FY2006 Without Increase	FY2006 With Increase
Fisheries Survey Vessel (FSV-#4)		
Exercise the FSV-#4 Option	Must negotiate new price*	January 2006
Delivery of FSV-#4	First Quarter, FY 2010	First Quarter, FY 2009
Operating Days	0 in FY 2009	Approximately 120 in FY 2009 **
	0 in FY 2010	Approximately 290 in FY 2010 **

* If the option on the existing contract expires, then the cost for FSV4 would increase by up to \$10.3 million.

** Contingent upon receiving funds for operations and maintenance after construction.

OUTYEAR FUNDING ESTIMATES (BA in \$ thousands)								
Fisheries Survey Vessel #4	FY 2005 & Prior	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Estimate to Complete	Total Program Estimate
Change from FY 2006 Base		32,500	12,800	0	1,000	0		
Total Request	5,519	32,500	12,800	0	1,000	0		51,819

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Fisheries Survey Vessel (FSV-#3) (0 FTE and -\$33,513,000): A decrease of 0 FTE and \$33,513,000 is requested for the third Fisheries Survey Vessel.

TERMINATIONS FOR FY 2006: The following programs, or portions thereof, are terminated in FY 2006: Small Waterplane Area Twin Hull Vessel (SWATH) (\$9,167,000), Navy Surplus Vessels (YTT) (AGATE PASS) (\$2,366,000), Fisheries Survey Vessel #4 (\$5,519,000), Sonar for Long Range Fisheries Research (\$5,618,000).

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
PROCUREMENT, ACQUISITION AND CONSTRUCTION
AIRCRAFT REPLACEMENT FY 2006 OVERVIEW

SUMMARIZED FINANCIAL DATA

(\$ in thousands)

Procurement, Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
<u>Program Support</u>					
G-IV Instrumentation Upgrades	1,084	3,496	0	0	0
Required Safety & Regulatory Upgrades to Various Aircraft	1,329	1,479	1,420	0	-1,420
Turbo Commander Replacement	1,534	0	0	0	0
WP-3D Navigation Upgrade	1,627	0	0	0	0
Subtotal, Program Support	5,574	4,975	1,420	0	-1,420
Total	5,574	4,975	1,420	0	-1,420

Program Support
Activity: Program Support/OMAO - Aircraft Replacement

GOAL STATEMENT:

Modernize NOAA's aircraft support to allow NOAA data-collection requirements to be met effectively.

BASE DESCRIPTION:

The objectives of this subactivity are to:

- Capture the non-recurring costs of acquiring or improving aircraft used by NOAA in carrying out its varied missions.
- Allow NOAA to realize procurement efficiencies, management accountability and to reflect the full cost of acquisition and/or improvement of and upgrades of aircraft, aircraft systems, subsystems, and equipment.

Base activities support the objective, "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

PROPOSED LEGISLATION:

None.

SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2004 ACTUALS	FY 2005 CURRENTLY AVAILABLE	FY 2006 BASE PROGRAM	FY 2006 ESTIMATE	INCREASE / DECREASE
Line Item: Program Support/OMAO - Aircraft Replacement					
G-IV Instrumentation Upgrades	1,084	3,496	-	-	-
Required Safety & Regulatory Upgrades to Various Aircraft	1,329	1,479	1,420	-	(1,420)
Turbo Commander Replacement	1,534	-	-	-	-
WP-3D Navigation Upgrade	1,627	-	-	-	-
TOTAL	5,574	4,975	1,420	-	(1,420)
FTE	-	-	-	-	-

PROGRAM CHANGES FOR FY 2006:

Required Safety and Regulatory Upgrades to Various Aircraft (0 FTE and -\$1,420,000): These upgrades will be completed in FY 2005, thus no funding is requested in FY 2006.

TERMINATIONS FOR FY 2006: The following programs are terminated in FY 2006: G-IV Instrumentation Upgrades (\$3,496,000), Required Safety & Regulatory Upgrades to Various Aircraft (\$59,000).

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